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Association Standard Grades OF HARDWOOD LUMBER

Classification, Official Grading Inspection Rules and Sales Code

OF

The Hardwood Manufacturers' Association of the United States

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Effective March 1, 1918

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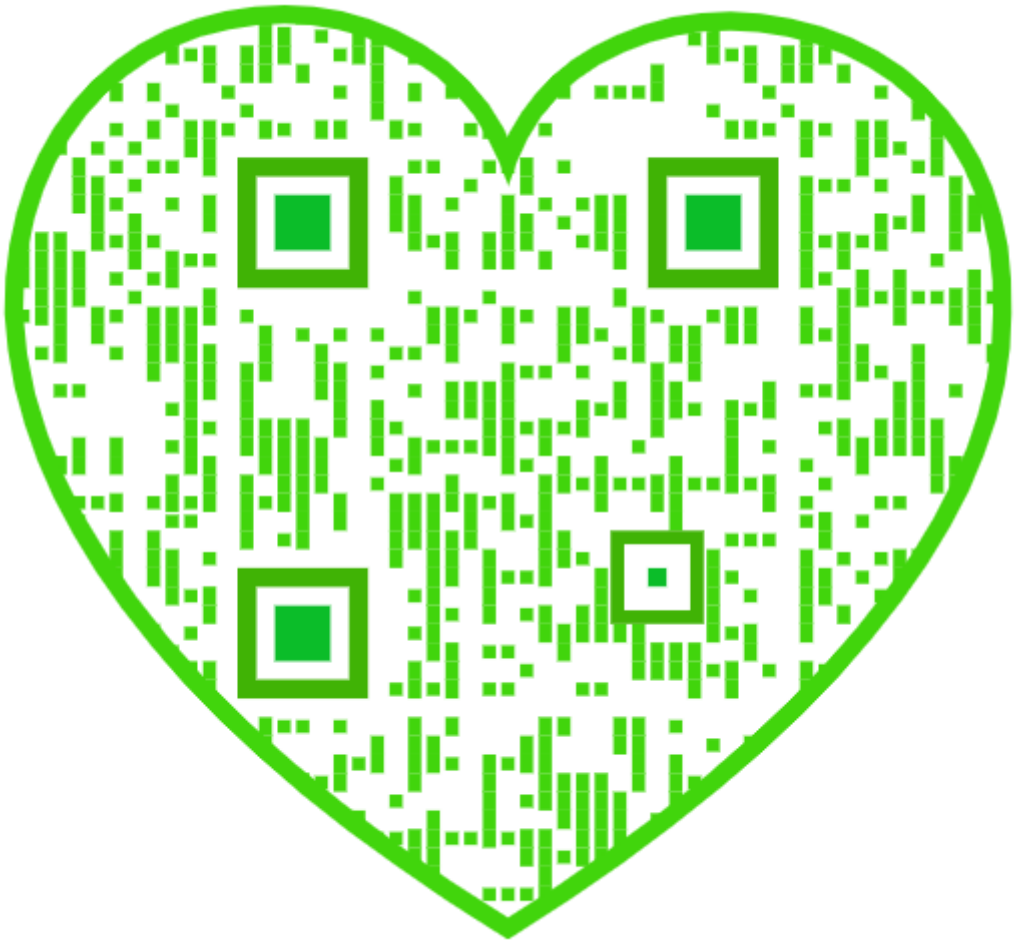

PREFACE

THE accompanying Rules, Regulations and Instructions for the Grading of Hardwood Lumber and Measurement of Logs were adopted June 3, 1902, at Louisville, Kentucky, by The Hardwood Manufacturers' Association of the United States.

These rules are revised and amended to date, March 1, 1918.

This Association will permit no infringement or violations of its rights under the copyright law. They are published only by this Association and advertising thereon will not be permitted.

These rules are subject to the supervisory instruction of the Chairman of our Executive Grading Commission.

The Hardwood Manufacturers' Association of the United States

F. R. GADD,
Ass't to President.

E. O. ROBINSON,
President.

Approved by the Executive Grading Commission.

W. E. DELANEY, Chairman.

Cincinnati, Ohio, March 1, 1918.

Association Standard Grades

OF

HARDWOOD LUMBER

Classification, Official Grading and Inspection Rules of : : : : :

The Hardwood Manufacturers' Association of the United States

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SALES CODE AND INSPECTION RULES

Title.

These Terms, Rules and Regulations were adopted by the Hardwood Manufacturers' Association of the United States, February 3, 1910, at their Eighth Annual Meeting, held at Cincinnati, Ohio, and are known as the Sales Code and Inspection Rules of the Hardwood Manufacturers' Association of the United States.

Revised and amended to date, March 1st, 1918.

Purposes.

When quotations, orders and contracts covering the sale of forest products in which the members of this Association deal, contain the clause "subject to the Sales Code and Inspection Rules of the Hardwood Manufacturers' Association of the United States, adopted February 3, 1910," and revised and amended to date, March 1, 1918, they shall be governed and controlled (with such exceptions as are specifically made in writing) by the following:—

SALES CODE

General Contingency Clause.

1. Quotations are based upon and orders and contracts accepted under a "General Contingency Clause," which recognizes that the Seller shall not be held liable for delays or non-deliveries of material, when occasioned by strikes, floods, fires, epidemics, car supply, delays of carriers or any other causes, whatsoever, beyond the control of the Seller. In any of these events, the Seller may suspend further performance under the same until such causes and their effects shall have been removed.

Prior Sale—Change Without Notice—Credit Rating.

2. All quotations are made subject to prior sale, change without notice, and Purchasers' credit rating proving satisfactory.

SALES CODE.

Written Order.

3. All orders and contracts shall be in writing.

Order Acceptance.

4. All orders and contracts are subject to approval and acceptance at the Main or Home Office of Seller, and are not binding unless confirmed in writing. Such acknowledgment shall contain all data appertaining to order, and shipment to be made in accordance therewith. Omissions and errors shall be corrected by the Purchaser in return mail. All forms used shall show the address of Main or Home Office of Seller.

Delivered Price—Freight Rates—Switching Charges—Damage.

5. The delivered price (f. o. b. destination) includes only the usual freight charges to point of delivery mentioned, and are based upon the freight rates in effect at time of quotation, with no allowance for switching, terminal charges, state or federal taxes, or any other charges. The Seller does not guarantee the continuance of those rates. In the event that freight rates change after acceptance of order and before the date of shipment, either party may cancel the contract, if the other party refuses to make the price accord with the changed rates. The Seller does not guarantee safe delivery, nor insure against breakage, loss or damage to material while in transit.

Time of Shipments.

6. (a) When order, or contract, specifies definite time for shipment, failure to ship within said time, gives the Purchaser the privilege of cancelling the order or contract by wire. (b) When no definite time for shipment is specified, the Purchaser shall not be entitled to cancel such order or contract inside of thirty days from the date of order or contract without the consent of the Seller. Whenever shipments are not made within thirty days, the Seller shall forthwith notify the Purchaser, giving reasons for failure to ship. Purchaser shall then have the privilege of forthwith cancelling by wire. Should Purchaser fail to so cancel, the Seller shall have an additional thirty days in which to ship; provided, however, that in case of special or worked material on hand at time of cancellation, all material must be accepted by Purchaser.

SALES CODE.

All material en route or loaded preparatory to shipping on such orders, at date of receipt of cancellation, at Home or Main Office of Seller (with three days' grace if Home or Main Office of Seller is not at point of shipment), shall be likewise accepted. Otherwise order or contract shall remain in effect until cancelled by mutual consent.

Terms of Payment.

7. Seller must promptly send to Purchaser an invoice for each carload, or other shipment. Each invoice is due and payable as follows: Freight is due upon arrival of shipment, and must be paid by Purchaser; original "Expense Bill" (or certified copy thereof) must be sent to Seller; balance of invoice (remainder after deducting freight) is due sixty days from date of shipment and bears interest after maturity; provided, however, that Purchaser may pay the same ten days after date of invoice with a discount of 2%; or thirty days after date of invoice, with a discount of 1%.

All payments must be made in funds at par New York or Chicago. Omissions and errors in invoice are subject to correction.

Credit.

8. If, during the life of any order, or contract, the financial responsibility of the Purchaser becomes impaired or unsatisfactory to the Seller, cash payments, with above discounts, or satisfactory security, may be demanded, in default of which, the order or contract may be cancelled by the Seller.

Reinspection.

9. In event of complaint by Purchaser on the quality of material shipped, Purchaser shall pay freight, unload and hold rejected lumber intact, properly protected, and shall file complaint with Seller within five days after receipt of shipment. If on quantity, the entire shipment must be held intact. Payment of freight or invoice shall not be considered as an acceptance of the shipment, nor shall such payment work a forfeiture of the right to enter complaints and make corrections.

Upon receipt of complaint of Seller, shipper shall at once request the Secretary of the Hardwood Manufacturers' Association to have reinspected the shipment in accordance with the rules of the Hardwood Manufacturers' Association

of the United States in effect at the time of execution of contract, and the purchaser shall lend reasonable assistance in the reinspection thereof.

Certificates will be issued by the said Association showing the original shipper, the Purchaser and the results of such reinspection, the original being mailed to the shipper and the duplicate to the Purchaser.

Settlement on Reinspection.

10. Both Seller and Purchaser shall be bound by such reinspection.

The Purchaser shall accept all material of the grade purchased, and all of the next lower grade not in excess of 5% of the total quantity invoiced, and shall pay for said grade at current proportionate prices as shown by the latest publication of market conditions issued by the Hardwood Manufacturers' Association. All de-grades in excess of 5% shall be the property of the Seller.

OFFICIAL STANDARD WEIGHTS OF HARDWOOD LOGS.

	Basis	Actual
Ash	10.00	9.84
Cottonwood	11.50	11.45
Cypress	9.00	8.99
Elm	10.00	10.18
Hickory	13.00	13.25
Gum	11.00	10.82
Poplar	7.50	7.35
Oak	11.00	10.95

Official Standard Weights of Hardwood Lumber.

Kinds of Wood	Thickness	Condition	Lbs. per 1000 ft. dry
Ash	1″ and thicker	rough	3,500
Basswood	1″ and thicker	rough	2,600
Beech	1″ and thicker	rough	4,000
Birch	1″ and thicker	rough	4,000
Buckeye	1″ and thicker	rough	2,600
Butternut	1″ and thicker	rough	2,800
Cherry	1″ and thicker	rough	4,000
Chestnut	1″ and thicker	rough	2,800
Cottonwood	1″ and thicker	rough	2,800
Cottonwood	½″ Bevel Siding		850
Cottonwood	⅝″	S2S	1,000
Cottonwood	½″	S2S	1,200
Cottonwood	⅝″	S2S	1,500
Elm (soft)	1″ and thicker	rough	3,200
Elm (rock)	1″ and thicker	rough	3,800
Gum, Red	1″ and thicker	rough,	3,300
Gum, Sap	1″ and thicker	rough,	3,100
Gum	½″ Bevel Siding	S1S	900
Gum	13-16″ Drop Siding	S2S	2,200
Gum	13-16″ Flooring	S2S	2,200
Gum	¾″ Ceiling	S2S	850
Gum	½″ Ceiling	S2S	1,300
Gum	¾″ Ceiling	S2S	2,000
Gum	⅝″ Ceiling	S2S	1,600
Gum, Red	1″	S2S 13-16″	2,500
Gum, Sap	1″	S2S 13-16″	2,350
Hickory	1″	rough	5,000
Hickory	Axles and Reaches	rough, dry	4,500
Hickory		green	6,000
Hickory	Rim Strips	rough	5,000
Maple (soft)	1″ and thicker	rough	3,000
Maple (hard)	1″ and thicker	rough	4,000
Oak	1″ and thicker	rough	3,900
Oak	⅜″ thick	rough	2,000
Oak	½″ thick	rough	2,200
Oak	⅝″ thick	rough	2,700
Oak	¾″ thick	rough	3,200
Oak Chair and Furniture Stock, 1″ and thicker			4,200
Oak Squares, 1″ x 1″ and larger			4,200
Oak Wagon Stock and Felloes		dry	4,500
Oak Wagon Stock and Felloes		green	6,000
Oak Plow Handle Strips		dry	4,250
Poplar	1″ and thicker	rough	2,800
Poplar	⅝″	rough	1,600
Poplar	¾″	rough	2,100
Poplar	½″ Bevel Siding	S2S	850
Poplar	Drop Siding	S2S	2,000
Poplar	¾″ Ceiling	S2S	800
Poplar	½″ Ceiling and Partition	S2S	1,200
Poplar	⅝″ Ceiling and Partition	S2S	1,500
Poplar	¾″ Ceiling and Partition	S2S	1,750
Poplar	13-16″ Ceiling and Partition	S2S	2,000
Poplar	1″	S2S to 13-16″	2,200
Sycamore	1″ and thicker	rough	3,200
Walnut	1″ and thicker	rough	4,000

These weights have been established from actual tests. It has been the accumulation of information received from different sections of the country, showing the average weights of the different varieties of wood and the different character of manufacture. Attests have been submitted showing the tests to be absolutely accurate.

THE STANDARD THICKNESS FOR DRESSED LUMBER

Rough Stock		Dressed Stock
3/8″	surfaced two sides to	7/32″
1/2″	" " " "	5/16″
5/8″	" " " "	7/16″
3/4″	" " " "	9/16″
1″	" " " "	13/16″
1 1/4″	" " " "	1–3/32″
1 1/2″	" " " "	1–11/32″
1 3/4″	" " " "	1 1/2″
2″	" " " "	1 3/4″
2 1/4″	" " " "	2″
2 1/2″	" " " "	2 1/4″
2 3/4″	" " " "	2 1/2″
3″	" " " "	2 3/4″
3 1/4″	" " " "	3″
3 1/2″	" " " "	3 1/4″
3 3/4″	" " " "	3 1/2″
4″	" " " "	3 3/4″

GENERAL INSTRUCTIONS FOR THE MANUFACTURE, INSPECTION AND MEASUREMENT OF HARDWOOD LUMBER

Manufacture.

1. Lumber shall be manufactured of practically uniform thickness and square edges, with all ragged ends trimmed off.

Inspection.

2. The location, size and kind of defects have much to do with the value of a board, and the inspector must depend to some extent on his own judgment, guided by the following rules:

3. In inspecting all lumber, both sides of the piece shall be taken into consideration in making the grade. In inspecting common grades, any board that will produce the required amount of cuttings of the regular thickness shall be passed, even if the balance of the board is not of the standard thickness, subject to restrictions of rule for missawed stock.

4. The face side of lumber is the side showing the best quality or appearance.

5. Pieces of lumber that would take two or three standard defects may have large defects equal in damage to two or three standard defects.

6. In grades below Firsts and Seconds and in woods where no Select grade is provided, boards 6 inches and over wide with one clear face shall be raised a grade above the reverse side.

7. Lumber shipped rough must be accepted on grades as shown in the rough, and not subject to any changes which may be caused by future mill working, except as to stained sap, as hereinafter stated.

8. Sap that will show bright after dressing to standard thickness shall be considered bright; all sap to be estimated in the average.

9. Any stain that will show bright after dressing to standard thickness shall not be considered a defect.

10. Splits that do not diverge more than one inch for each foot in length are to be considered straight splits.

11. Ordinary season checks are not to be considered defects.

12. A straight split not exceeding 6 inches in length in one end of a piece of lumber 8 inches and over wide shall not be considered a defect.

GENERAL INSTRUCTIONS.

13. The rules for the inspection of lumber are intended to define the poorest piece that will go into a given grade; all the better boards up to the next higher grade being also included in the grade described. Line boards twelve feet and longer shall be given advantage in grade, and eleven feet and shorter reduced.

14. CLEAR FACE CUTTINGS must show one face clear of all defects excepting bright sap, except as hereinafter stated.

The reverse side of Clear Face Cuttings may contain small defects, or one large defect not exceeding 2 inches in diameter that will not materially weaken the strength of the piece, and that will not show through to the face when worked.

SOUND CUTTINGS may contain firm knots; pin worm holes, sap and other defects which would not materially weaken the strength of the piece.

The word "Cuttings" is intended to include both rippings and cuttings.

15. LOG RUN means the full run of the log with all boards included that will cut 50% or better into sound cuttings. The smallest cutting allowed must contain 72 square inches and must not be shorter than 2 feet nor narrower than 3 inches, Walnut and Cherry excepted, which will allow a minimum of 33 1/3% sound cuttings and the dimensions for the smallest cutting to be the same as above.

16. COMMON AND BETTER means the full run of the log, with all grades below No. 1 Common excluded. This grade must contain at least 25% of Firsts and Seconds.

16a. THE PERCENTAGES OF FIRSTS required in the combined grade of Firsts and Seconds in the different woods are as follows:

50%—Poplar.

40%—Basswood, Soft Elm, Mexican Mahogany, Cottonwood, Magnolia, Willow.

35%—African Mahogany.

33 1-3%—White Ash, Birch, Hard Maple, Chestnut, Sycamore, Red and White Oak (Plain and Quartered), Buckeye, Red and Sap Gum.

25%—Soft Maple, Brown and Black Ash, Cuban Mahogany, Hackberry.

20%—Beech, Butternut, Rock Elm, Hickory, Pecan, Walnut and Cherry.

Cypress, Tupelo, Black Gum, (see Grading Rules of the Southern Cypress Association, New Orleans, La.)

GENERAL INSTRUCTIONS.

Measurement:

17. Lumber must be inspected and measured as the inspector finds it, of full length and width. He shall make no allowance for the purpose of raising the grade.

18. In the measurement of all lumber, fractions exactly on the half foot are to be dropped, and all fractions above the half foot are to be counted to the next higher figure on the board rule. In quarter-sawed lumber where there is a bevel the first ¼″ is to be measured, all in excess of ¼″ is to be measured off.

19. A careful piece tally must be kept of all lumber showing the face measure. This shall be considered the board measure in all lumber one inch and thinner. To obtain the board measure in stock thicker than one inch, multiply the face measurement by the thickness in inches.

20. In the absence of the shortest lengths in the grade where the same is allowed, the per cent of the next longer lengths may be increased proportionately.

21. Tapering lumber shall be measured at one-third the length of the board from the narrow end, except strips.

22. All widths and lengths mentioned in these rules shall be inclusive.

23. The standard lengths are four to twenty feet, with fifteen per cent of odd lengths in feet in any grade admitted as standard lengths.

24. The standard thicknesses for rough stock are: ⅜, ½, ⅝, ¾, 1, 1¼, 1½, 1¾, 2, 2¼, 2½, 2¾, 3, 3¼, 3½, 3¾ and 4 inches. 10% of the shipment may be 1/16″ scant of the standard thickness.

25. Lumber showing any greater variation in thickness than: 1/16″ in ½-inch stock, ⅛″ in ⅝ & ¾-inch stock, ¼″ in 1 & 1-¼-inch stock, ½″ in 1-½ & 2-inch stock, ⅝″ in over 2-inch stock, must be graded as in the regular grade shown according to defects, etc., but measured at the thin part, and tallied separately as mis-sawed lumber.

In Common grades the percentage of cuttings required must be the part of the lumber only required to show the above variations.

Standard Defects.

26. Each one of the following items constitutes a standard defect, any of which may appear in the board up to the limit specified in the rule covering its quality.

a. One knot one and one-fourth inches in diameter.

b. Two knots so located that they will not exceed in damage one standard knot.

c. Worm holes, grub holes, or rafting pin holes not exceeding in damage one standard knot.

d. Heart, shake, rot, dote, or any other defects not exceeding in damage one standard knot.

e. Bark or waney edge not to exceed one inch in the average, running not to exceed one-third the length of the board, only showing on one side and to be measured.

POPLAR

General Instructions, and the following rules are to govern the inspection:

Bright Burls that will dress smooth are not to be considered defects in any grade.

Sound Gum Spots are no defect in any grade. Open Gum Spots to be considered by the inspector.

The standard lengths and thicknesses are as designated under the heading of each grade.

Grades and Nomenclature.

The following are the standard grades of Poplar lumber adopted and the terms by which they are to be known:

Rough Stock.

Grades.	Standard Thicknesses
Panel and Wide No. 1	3/8 to 2 inches
Fas or Firsts and Seconds combined as one grade	3/8 to 4 inches
Selects	3/8 to 4 inches
Saps	3/8 to 2 inches
Wide No. 2	3/8 to 2 inches
No. 1 Common	3/8 to 4 inches
No. 2 Common	3/8 to 4 inches
No. 3 Common	3/8 to 4 inches
No. 4 Common	3/8 to 4 inches
Scoots	3/8 to 4 inches
Car Sign Boards	1 to 2½ inches
Wagon Box Boards	1 inch
Shorts	3/8 to 4 inches
Strips	3/8 to 2 inches

Quartered Poplar.

Fas or Firsts and Seconds	5/8 to 2 inches
No. 1 Common	5/8 to 2 inches
No. 2 Common	5/8 to 2 inches

Squares.

4x4, 5x5, 6x6, 7x7, 8x8, 9x9, 10x10, 11x11, and 12x12.

Fas or Firsts and Seconds.

No. 1 Common.

Panel and Wide No. 1.

Panel and Wide No. 1 are combined as one grade.

Lengths: 8 feet and over, admitting 15% of odd lengths; 20% may be 8, 9 and 10 feet, and not to exceed 10% under 10 feet.

POPLAR.

Widths: 18 inches and over.

Thicknesses: ⅜ to 2 inches.

Bright sap no defect.

Panel.—8 and 9-foot lengths must be clear.

Seventy-five per cent of the total quantity must be clear of defects on both sides; the balance of the quantity may contain three defects, provided ninety per cent of the piece can be used for Panels four feet and longer, in the full width of the board.

Splits six inches long in one end not to be considered a defect in any board; splits longer than six inches not to be admitted.

Wide No. 1.—8 and 9-foot lengths will admit one standard defect.

10 and 11-foot will admit two standard defects.

12 to 16-foot will admit three standard defects.

17 to 20-foot will admit four standard defects.

Splits admitted not to exceed fifteen inches in not to exceed ten per cent of the pieces.

Firsts and Seconds (Fas).

Lengths: 8 feet and over, admitting 15% of odd lengths; 20% may be 8, 9 and 10 feet, and not to exceed 5% under 10 feet.

Widths: 7 to 17 inches, up to 2 inches thick, 2¼ inches and thicker, 7 inches and over wide.

Thicknesses: Standard.

Firsts shall be 8 inches and over wide.

8 to 9 inches must be clear.

10 to 11 inches will admit 1 inch of bright sap.

12 to 14 inches will admit one standard defect and 2 inches of bright sap, or 4 inches of bright sap if there are no knots or equal defects.

15 to 17 inches will admit two standard defects, or one standard defect and 3 inches of bright sap, or 6 inches of bright sap if there are no knots or equal defects.

Seconds shall be 7 inches and over wide.

7 inches must be clear.

8 inches will admit 1 inch of bright sap.

9 to 11 inches will admit one standard defect and 1 inch of bright sap, or 3 inches of bright sap or equal defects.

12 to 14 inches will admit two standard defects and 2 inches of bright sap, or one standard defect and 4 inches of bright sap, or 5 inches of bright sap if there are no other defects.

15 to 17 inches will admit three standard defects or two standard defects and 3 inches of bright sap, or 6 inches of bright sap if there are no other defects.

POPLAR.

Splits not to exceed in length the width of the board admitted and to be considered one standard defect, and not over twenty per cent of the whole in either quality may be so split.

Selects.

Lengths: 8 feet and over, admitting 15% of odd lengths; 20% may be 8, 9 and 10 feet, and not to exceed 5% under 10 feet.

Widths: 6 inches and over.

Thicknesses: Standard.

Selects shall include the following different kinds of boards:

(1) A board having a face side as good as a First, the other side must be as good as a No. 2 Common. Sun checks admitted on the poor side of this board.

(2) A board having a face side as good as a Second, the other side must be as good as a No. 1 Common.

(3) A board that has one more standard defect than would admit it to a Second. Examples:

(a) A board 6 to 7 inches wide with one standard defect.

(b) A board 8 inches wide with 1 inch of bright sap and one standard defect.

(c) Boards 9 to 11 inches wide with 2 inches of bright sap and two standard defects, and accordingly as widths increase.

Splits not to exceed the width of the board up to 10 inches are admitted. Boards over 10 inches in width will admit a split one-sixth the length of the board.

Saps.

Lengths: 8 feet and over, admitting 15% of odd lengths; 20% may be 8, 9 and 10 feet, and not to exceed 5% under 10 feet.

Widths: 4 to 17 inches.

Thicknesses: Standard.

Saps will admit standard defects as follows:

Up to 10 inches wide, none.

11 to 12 inches wide, one.

13 inches and wider, two.

Splits not to exceed the width of the board up to 10 inches are admitted. Boards over 10 inches in width will admit a split one-sixth the length of the board, if there are no other defects.

Bright sap or sap that will show bright after dressing to standard thickness admitted.

POPLAR.

Wide No. 2.

Lengths: 8 feet and over, admitting 15% of odd lengths; 20% may be 8, 9 and 10 feet, and not to exceed 10% under 10 feet.

Widths: 18 to 23 inches, 24 to 27 inches and 28 inches and over.

Thicknesses: 3/8 to 2 inches.

Bright sap no defect.

8-foot lengths will admit two standard defects.

18 inches wide, except 8-foot lengths, may contain five standard defects and one additional defect for each two inches of additional width.

Splits equal in length to the width of the board are admitted in not to exceed ten per cent of the boards, and are counted as a standard defect.

No. 1 Common.

Lengths: 8 feet and over, admitting 15% of odd lengths; 20% may be 8, 9 and 10 feet, and not to exceed 5% under 10 feet.

Widths: 5 inches and over.

Thicknesses: Standard.

Bright sap admitted. 20% of sound discolored sap admitted on face.

No. 1 Common shall be inspected to grade according to the percentage of clear face cuttings, as shown below:

No piece or cutting to be less than 5 inches wide and 18 inches long.

The following table explains fully how the widths and lengths of the boards are to grade:

Width	Length	Per cent.	No. of Pieces
5 inches	8 to 14 feet	90%	2
"	15 feet and over	90%	3
6 to 7 inches	8 to 10 feet	85%	2
"	11 feet and over	85%	3
8 to 9 inches	8 to 10 feet	75%	2
"	11 to 16 feet	75%	3
"	17 feet and over	75%	4
10 to 12 inches	8 to 11 feet	70%	2
"	12 to 16 feet	70%	3
"	17 feet and over	70%	4
13 in. and over	8 to 11 feet	66 2-3%	3
"	12 to 16 feet	66 2-3%	4
"	17 ft. & over	66 2-3%	5

No. 2 Common.

Lengths: 6 feet and over, admitting 15% of odd lengths; 25% may be 6, 7 and 8 feet, and not to exceed 10% under 8 feet.

POPLAR.

Widths: 4 inches and over.

Thicknesses: Standard.

No. 2 Common shall include all lumber that will not come up to the grade of No. 1 Common and that will work at least 50% into sap or clear face cuttings. No cutting to be less than 4 inches wide and 2 feet long.

Sound discolored sap is not to be considered a defect in this grade.

No. 3 Common.

Lengths: 4 feet and over, admitting 15% of odd lengths; 25% may be 4, 5 and 6 feet, and not to exceed 10% under 6 feet.

Widths: 3 inches and over.

Thicknesses: Standard.

No. 3 Common must contain at least 50% sound cuttings. No cutting to be less than 3 inches wide and 2 feet long.

No. 4 Common.

No. 4 Common shall include all lumber not up to the grade of No. 3 Common that can be used for cheap boxing, sheathing, crating, etc. Worm holes are not to be considered defects, and unsound lumber with sufficient substance to hold nails admitted.

Scoots.

Scoots shall include all lumber not up to the grade of No. 4 Common.

STANDARD GRADES FOR SPECIFIC PURPOSES.

Car Sign Boards.

Lengths: 12 to 20 feet, admitting 15% of odd lengths; 20% may be 12 and 13 feet, 20% 14 and 15 feet, and the balance 16 to 20 feet.

Widths: 13 to 17 inches.

Thicknesses: 1, 1¼, 1½, 2 and 2½ inches.

The face side must be free from all defects except bright sap.

The reverse side of this stock must be sound and rigid, for the purpose of making a solid support for the face. Defects are allowed on the back which will not materially impair the strength of the piece.

POPLAR.

Wagon Box Boards.

Widths: Wide, 13 to 17 inches. Narrow, 9 to 12 inches.

Lengths: 11 to 16 ft.

Thickness: Must be 1 inch thick when shipping dry.

Defects: Bright or sound discolored sap or a few scattered pin worm holes admitted.

11 ft. lengths will admit 3 inch split in one end, or their equivalent in one or both ends.

12, 13, 15 and 16 ft. lengths will admit of a 12 inch split in one end, or its equivalent in one or both ends; 14 ft. lengths will admit of splits not to exceed 6 inches in one end or its equivalent in both ends; otherwise, each piece in 11 to 13 ft. lengths may contain defects that do not prevent the piece from cutting one side; or in each piece 14 to 16 ft. long, one side and one end; sides to work 10 feet 6 inches long; ends to work 3 feet 6 inches long by the full width of the piece. Each side and end may contain one sound standard defect, or its equivalent, showing on one side.

Note.—Five percent in feet of a shipment that can be reduced in measurement by cutting the end or edge or both to a size ordered must be accepted and measured as Boxboards, separate tally to be kept of such boards, showing reduction and measurement.

SHORTS.

Lengths: 12 to 42 inches—in multiples of 6 inches.

Widths: 3 inches and up.

Thicknesses: Standard.

No. 1.

Will admit not to exceed one 6-inch split and two standard defects.

No. 2.

Shall work 50% sound cutting.

Wane admitted not to exceed 3 inches in width and one-third the length of the piece on one edge or the equivalent on both edges.

This is to be used for Box Shook or cutting up purposes.

STRIPS.

Strips shall be measured at the narrow end and tallied lengths separate on the half and even inches. In event of beveled edges, the narrow face shall be measured.

Lengths: 8 feet and over, admitting 15% of odd lengths;

POPLAR.

20% may be 8, 9 and 10 feet, and not to exceed 10% under 10 feet.

Widths: 2½, 3, 3½, 4, 4½, 5, 5½ and 6 inches.

Thicknesses: Standard.

No. 1 Strips shall be clear of all defects, excepting 1 inch of bright sap showing only on one face.

Select Strips will admit bright sap without limit, or, in the absence of sap, two sound knots, not to exceed ¾-inch each in diameter, or one standard defect.

No. 1 Common Strips will admit bright or sound discolored sap without limit. In addition thereto 8 to 12-foot lengths may have two standard defects; 14-foot and over, three.

No. 2 Common Strips will admit all pieces that will not come up to the grade of No. 1 Common, which can be used for cheap work without waste of more than one-third the length of any one piece. Pin-worm holes admitted.

SQUARES.

Lengths: 8 feet and over, admitting 15% of odd lengths

Sizes: 4x4, 5x5, 6x6, 7x7, 8x8, 9x9, 10x10 and 12x12.

Grades: Firsts and Seconds and No. 1 Common.

Firsts and Seconds (Fas).

Firsts and Seconds are combined as one grade.

Firsts are to be sound and free from hearts, shakes and checks, but may have other defects, as follows:

		Standard Knots		Bright Sap on 2 edges
4″x 4″	8 to 12 feet long	1	or	2″
4″x 4″	13 feet and longer	1	and	2″
5″x 5″ / 6″x 6″	8 to 12 feet long	1	or	2″
5″x 5″ / 6″x 6″	13 feet and longer	2	and	3″
7″x 7″	8 to 12 feet long	2	or	3″
7″x 7″	13 feet and longer	2	and	3″
8″x 8″	8 to 12 feet long	3	or	3″
8″x 8″	13 feet and longer	3	and	3″
9″x 9″	8 to 12 feet long	4	or	3″
9″x 9″	13 feet and longer	4	and	3″
10″x10″	8 to 12 feet long	5	or	4″
12″x12″	13 feet and longer	5	and	4″

Seconds will admit all knots, as described in Firsts, but bright sap will be admitted without limit.

POPLAR.

No. 1 Common.

No. 1 Common Squares will include all Squares not up to the grade of Firsts and Seconds, that will cut two-thirds their length clear in pieces that can be used for newells and short turnings not less than 3 feet long, or will admit of stained sap without limit, if they have no more defects than would go in a Second, or will admit of season checks running full length of two sides.

QUARTERED POPLAR.

Defects in this kind of Poplar differ from those in plain sawed, and consist largely of spike knots and open gum spots.

Bright sap no defect.

Firsts and Seconds (Fas).

Firsts and Seconds are combined as one grade.

Lengths: 8 feet and over, admitting 15% of odd lengths; 20% may be 8, 9 and 10 feet, and not to exceed 10% under 10 feet.

Widths: 5 inches and over.

Thicknesses: Standard.

5 inches must be clear.

6 to 7 inches, 8 to 12 feet long, will admit two knots showing 1-inch space on edge, or one defect condensed not exceeding a 2-inch space.

6 to 7 inches, 14 feet and longer, will admit three knots showing 1-inch space on edge, or one or two defects condensed not exceeding 3 inches in space.

8 to 9 inches, 8 to 12 feet long, will admit two knots showing 1½ inches space on edge, or one defect condensed not exceeding 3 inches in space.

8 to 9 inches, 14 feet long and longer, will admit three knots 1½ inches in space on edge, or one or two defects condensed not exceeding the same.

10 inches and wider, 8 to 12 feet long, will admit two knots 2 inches in space on edge, or one defect condensed not exceeding the same.

10 inches and wider, 14 feet and longer, will admit three knots 2 inches in space on edge, or one or two defects condensed not exceeding the same.

POPLAR (Quartered).

No. 1 Common.

Lengths: 8 feet and over, admitting 15% of odd lengths; 20% may be 8, 9 and 10 feet, and not to exceed 10% under 10 feet.

Widths: 4 inches and over.

Thicknesses: Standard.

Bright sap no defect.

No. 1 Common shall be inspected to grade according to the percentage of clear face quartered cuttings as shown below.

No piece or cutting to be less than 4 inches wide and 18 inches long.

The following table explains fully how the widths and lengths of boards are to grade:

Width	Length	Per cent.	No. Pcs.
4 inches	8 to 12′	85	2
"	13 to 20′	85	3
5 to 6″	8 to 10′	80	2
"	11 to 14′	80	3
"	15 and 16′	80	4
"	17 to 20′	80	5
7 to 8″	8 to 12′	70	3
"	13 to 16′	70	4
"	17 to 20′	70	5
9″ and wider	8 to 12′	66 2-3	3
"	13 to 16′	66 2-3	4
"	17 and 18′	66 2-3	5
"	19 and 20′	66 2-3	6

No. 2 Common.

Lengths: 6 feet and over, admitting 10% of odd lengths; 25% may be 6, 7 and 8 feet, and not to exceed 10% under 8 feet.

Widths: 3 inches and over.

Thicknesses: Standard.

Bright or slightly discolored sap no defect.

No. 2 Common shall include all lumber that will not come up to the grade of No. 1 Common that will work at least 50% into clear face quartered cuttings. No piece or cutting to be less than 3 inches wide and 2 feet long.

POPLAR, DRESSED OR WORKED.

General Instructions.

1. Dressed Poplar shall be inspected from the best or face side. The reverse side may contain defective dressing but no other defects that would not go in the grade.

POPLAR (Dressed).

General Instructions (Continued).

2. Slightly chipped grain on face side admitted, provided it does not exceed 6 inches square in Firsts and Seconds, 12 inches square in Saps and Selects, and 18 inches square in No. 1 Common in the aggregate.

3. Imperfect manufacture in dressed or worked stock, such as torn grain, broken knots, mis-matched, insufficient tongue or groove, shall be considered defects and will reduce the grade accordingly.

4. Partition, Ceiling, Flooring or Drop Siding, having less than three-sixteenths of an inch tongue, shall not be admitted in any grade above No. 2 Common.

5. Wane on the reverse side, not exceeding one-third the width, and running not to exceed one-sixth the length of any piece, provided the wane does not extend into the tongue, or over one-half the thickness below the groove, will be admitted.

Bevel Siding.

Bevel Siding is made from 1x4, 5 and 6-inch strips, S4S to 27/32 x 3⅜, 4⅜ and 5⅜ inches and resawed on a bevel.

No. 1. Lengths: 6 to 20 feet, admitting 15% of odd lengths. Must be practically free of defects except 1 inch of sap or two knots on thin edge that will cover by lap.

SELECTS. Lengths: 6 to 20 feet, admitting 15% of odd lengths. Will admit two sound knots ¾" in diameter, or one standard defect. Sap admitted without limit.

No. 1 COMMON. Lengths: 4 to 20 feet, admitting 15% of odd lengths. Sound discolored sap and scattering pin-worm holes not to be considered defects in this grade In addition thereto boards may contain standard defects or their equivalent as follows:

4-foot lengths, one.

5 to 9-foot lengths, two.

10 to 14-foot lengths, three.

15 to 20-foot lengths, four.

No. 2 COMMON. Lengths: 4 to 20 feet, admitting 15% of odd lengths. Will admit all pieces that will not come up to the grade of No. 1 Common which can be used for cheap siding without waste of more than one-third the length of any one piece. Pin-worm holes admitted.

POPLAR (Dressed).

Drop Siding.

Made from 1x4, 5 and 6-inch strips.

Widths: 3¼, 4¼, 5¼ inches net face, counted as 4, 5 and 6-inch respectively.

Thickness: ¾ inch net after surfacing.

The above covers all grades.

No. 1. Lengths: 6 to 20 feet, admitting 15% of odd lengths. Must be practically free of defects on face side.

SELECTS. Lengths: 6 to 20 feet, admitting 15% of odd lengths. Will admit two sound knots ¾″ in diameter, or one standard defect. Sap admitted without limit.

No. 1 COMMON. Lengths: 4 to 20 feet, admitting 15% of odd lengths. Sound discolored sap and scattering pin-worm holes not to be considered defects in this grade. In addition thereto boards may contain standard defects or their equivalent as follows:

4-foot lengths, one.

5 to 9-foot lengths, two.

10 to 14-foot lengths, three.

15 to 20-foot lengths, four.

No. 2 COMMON. Lengths: 4 to 20 feet, admitting 15% of odd lengths. Will admit all pieces that will not come up to the grade of No. 1 Common which can be used for cheap siding without waste of more than one-third the length of any one piece. Pin-worm holes admitted.

Dressed Dimension Strips.

Widths, 3 inches and over; stock S2S ¼ inch scant in width; stock S4S ½ inch scant in width.

Thicknesses: Standard.

No. 1 Dimension: Lengths, 6 to 20 feet, admitting 15% of odd lengths. Each piece must be practically clear on one face, 7 to 9″ widths, 1″ of bright sap admitted on one edge showing on face side, 10 to 12″ widths 1½″ of bright sap admitted on one edge showing on face side.

SELECT Dimension: Lengths, 6 to 20 feet, admitting 15% of odd lengths. Bright sap admitted without limit, and in addition thereto one standard defect or its equivalent admitted in boards 8″ and under wide, and two standard defects or their equivalent admitted in boards 9 to 12″ inclusive.

No. 1 COMMON Dimension: Lengths, 4 to 20 feet, admitting 15% of odd lengths. Shall admit of any number of sound knots that paint will cover, the board to work full length and width. Bright or sound discolored sap and

POPLAR (Dressed).

scattered pin-worm holes not to be considered defects in this grade.

No. 2 COMMON Dimension: Lengths, 4 to 20 feet, admitting 15% of odd lengths. Shall include all boards that will work two-thirds or more of the same grade as No. 1 Common, in not to exceed three cuts the full width of the boards, no cutting to be shorter than 3 feet.

Casing and Base.

Lengths: 8 feet and over, admitting 15% of odd lengths.

Widths: Net, 3½, 4½, 5½, 6½, 7½, 8½ and 9½ inches, counted ½-inch wider than net face.

Thickness: 13/16 inch after surfacing.

The above refers to and covers all grades.

FIRSTS AND SECONDS. Each piece must be practically clear on face side.

7 to 10-inch widths, 1 inch of bright sap admitted on one edge, showing on face side.

SAPS AND SELECTS. Bright sap admitted without limit, and in addition one standard defect or its equivalent to be admitted in boards 8″ and under, and two standard defects or their equivalent in boards 9 to 10″ wide.

No. 1 COMMON. This grade will include all stock that will not come up to the grade of Saps and Selects, that will work two-thirds of its length clear face in pieces 3 feet long and longer, regardless of sap. Stained sap, without limit, where there are no other defects, admitted in this grade.

Flooring and Ceiling.

Widths: 2¼, 3¼, 4¼ and 5¼ inches net face, counted as 3, 4, 5 and 6 inches, respectively.

Stock finished on the one-half inch shall be counted three-quarter inch wider than net face.

Thicknesses: Flooring, 13/16″ after surfacing. Ceiling, 5/16″ counted as ⅜″, 7/16″ counted as ½″, 9/16″ counted as ⅝″, and 11/16″ counted as ¾″.

The above covers all grades.

No. 1. Lengths: 8 to 20 feet, admitting 15% of odd lengths. Must be practically free from defects on face side.

SELECTS. Lengths: 6 to 20 feet, admitting 15% of odd lengths. Bright sap without limit or in the absence of sap two sound knots not to exceed ¾ inch in diameter or one standard defect.

POPLAR (Dressed).

No. 1 COMMON. Lengths: 4 to 20 feet, admitting 15% of odd lengths. Bright or sound discolored sap and scattering pin-worm holes not to be considered defects in this grade. In addition thereto boards may contain the following standard defects or their equivalent:

4-foot lengths, one.
6 to 10-foot lengths, two.
12 to 14-foot lengths, three.
16 to 20-foot lengths, four.

No. 2 COMMON. Lengths: 4 to 20 feet, admitting 15% of odd lengths.

Will admit all pieces that will not come up to the grade of No. 1 Common which can be used for cheap work without waste of more than one-third the length of any one piece. Pin-worm holes admitted.

Partition.

The rules for Flooring and Ceiling shall apply, except that the reverse side of the piece must not be of a lower grade than the face.

Mouldings.

No. 1.

Lengths: 8 feet and over, admitting 15% of odd lengths; 20% of 8, 9 and 10 feet, with not to exceed 10% under 10 feet.

Widths, thickness and pattern to be governed by Universal Moulding Book, and to be graded as follows:

Bright sap or slightly discolored sap shall be admitted without limit; otherwise clear, except slightly chipped grain not to exceed one-twelfth the length of any one piece.

No. 2.

Lengths: 6 feet and over, admitting 15% of odd lengths; 20% of 6, 7 and 8 feet, with not to exceed 10% under 8 feet.

Widths, thickness and pattern to be governed by Universal Moulding Book, and to be graded as follows:

No. 2 will include all moulding that will not come up to the grade of No. 1 that will work 50% clear in pieces 4 feet and longer. Sound discolored sap is no defect.

PLAIN SAWED OAK, RED OR WHITE.

General instructions and the following rules are to govern the inspection:

Standard Grades: Fas, Step Plank, Select, No. 1 Common, No. 2 Common, Fas Wormy, No. 1 Common Wormy, Core Stock, No. 3 Common, No. 4 Common.

The standard lengths and thicknesses are as designated under the heading of each grade.

Firsts and Seconds (Fas).

Firsts and Seconds are combined as one grade.

Lengths: 8 feet and over, admitting 15% of odd lengths; 20% may be 8, 9 and 10 feet, and not to exceed 5% under 10 feet.

Widths: 6 inches and over.

Thicknesses: Standard.

Firsts shall be 6 inches and over wide, 10 feet and over long, and will admit standard defects as follows:

6 to 7 inches wide, none.

8 inches and over wide, one.

Seconds are 6 inches and over wide, 8 feet and over long, and will admit standard defects as follows:

6 to 7 inches wide, one.

8 to 10 inches wide, two.

11 to 13 inches wide, three.

14 to 16 inches wide, four.

As widths increase, defects may increase in proportion.

Splits not to exceed one-sixth the length of the piece admitted and to be considered as one standard defect and not over 20% of the whole in either quality may be so split.

Bright sap to one-third the width of the piece on the face side is no defect.

STEP PLANK.

Grades: Firsts and Seconds and No. 1 Common.

Lengths: 4 feet and over, admitting 10% of odd lengths.

Widths: 10 to 15 inches.

Thicknesses: 1, 1¼, 1½ and 2 inches.

Firsts and Seconds (Fas).

(Step Plank)

Firsts and Seconds are combined as one grade, and must show one face and one edge practically free from all defects. The other side and other edge may contain sound defects that will not materially weaken the strength of the piece.

Ten feet and over long may have one split not exceeding 12 inches in length.

No. 1 Common.

(Step Plank)

No. 1 Common will include all lumber not up to the grade of Firsts and Seconds, that can be used for Step Plank without waste of more than one-third of the piece.

No piece or cutting to be less than 4 feet long by the full width of the piece.

PLAIN RED OR WHITE OAK.

Implement.

Widths: 6 inches and over. Lengths: 8 feet and over.

Will admit only practically sound defects equal to those permitted in standard grade of Fas, well scattered pin and spot worm holes; small sound knots or equivalent defects that will not impair the use of the piece for the purpose intended.

Selects.

Lengths: 6 feet and over, admitting 15% of odd lengths, not over 30% under 12 feet, and not to exceed 5% of 6 and 7 feet.

Widths: 5 inches and over.

Thicknesses: Standard.

Bright sap is not a defect.

Inspection to be made from the good side of the piece. Pieces 6 feet and 7 feet must be clear one face and sound on the reverse side.

Pieces 6 inches and over wide, 8 feet and over long, must grade not below seconds on the best face. The reverse side of pieces 8 feet and over long, must work at least 80% sound.

This grade may also include pieces other than those described above, below the grade of seconds, that will work at least 80% clear face, as follows: 12 feet and shorter, 2 cuttings; 13 feet and longer, 3 cuttings.

The smallest cutting allowed must contain 144 square inches. It must not be shorter than 18 inches, nor narrower than 5 inches.

No. 1 Common.

Lengths: 4 feet and over, admitting 15% of odd lengths; 25% may be 4, 5, 6, 7 and 8 feet, and not to exceed 5% under 8 feet.

Widths: 4 inches and over.

Thicknesses: Standard.

Bright sap is not a defect in this grade.

4-6-foot lengths must be clear one face, up to 8 inches wide; over 8 inches wide will admit one standard defect.

Other widths and lengths must work 66-2/3% clear face as follows:

Widths	Lengths	No. of Pieces
4 to 11 inches	7 to 11 feet	2
4 to 11 inches	12 to 16 feet	3
4 to 11 inches	17 to 20 feet	4
12 to 15 inches	7 to 11 feet	3
12 to 15 inches	12 to 16 feet	4
12 to 15 inches	17 to 20 feet	5
16 inches and over	7 to 11 feet	4
16 inches and over	12 to 16 feet	5
16 inches and over	17 to 20 feet	6

The smallest cutting allowed must contain 144 square inches, and it must not be shorter than 18 inches nor narrower than 4 inches.

PLAIN RED OR WHITE OAK.

No. 2 Common.

Lengths: 4 feet and over, admitting 15% of odd lengths; 25% may be 4, 5 and 6 feet, and not to exceed 10% under 6 feet.
Widths: 3 inches and over.
Thicknesses: Standard.
Bright sap is no defect.
Pieces 4 feet long must be clear one face.
Pieces 5 feet and longer must work at least 50% clear face cutting.
No piece or cutting can be shorter than 18 inches nor narrower than 3 inches, and must contain 144 square inches.

Fas Wormy.

Lengths: 6 feet and over, admitting 15% of odd lengths; 25% may be 6, 7 and 8 feet, not to exceed 5% under 8 feet.
Widths: 6 inches and over.
Thicknesses: Standard.
To grade the same as present rule covering regular grade of Fas, except that spot worm holes, scattered pin worm holes and bird peck shall not be considered defects.

No. 1 Common Wormy.

Lengths: 4 feet and over, admitting 15% of odd lengths; 25% may be 4, 5, 6, 7 and 8 feet, not to exceed 5% under 8 feet.
Widths: 4 inches and over.
Thicknesses: Standard.
To grade the same as present rule covering regular grade of No. 1 Common as to size and number of cuttings. The cuttings may contain pin and spot worm holes, shot worm holes and bird peck.

Core Stock.

Lengths: 4 feet and over, admitting 15% of odd lengths; not to exceed 10% under 6 feet.
Widths: 3 inches and over.
Thicknesses: Standard.
This stock to work full length and width except that wane not over ½ inch deep and not over 3 feet long, and splits or heart shake not exceeding in length the width of the board, shall not be considered defects. This grade will admit all defects that will not interfere with its use for core purposes. These defects largely being worm holes, ingrown bark, bird peck and sound knots.

No. 3 Common.

Lengths: 4 feet and over, admitting 15% of odd lengths.
Widths: 3 inches and over.
Thicknesses: Standard.
Each piece must work at least 50% sound cutting.
No piece or cutting can be shorter than 2 feet, nor narrower than 3 inches.
Sound discolored sap is no defect.

PLAIN RED OR WHITE OAK—LOCUST.

No. 4 Common.

No. 4 Common shall include all lumber not up to the grade of No. 3 Common that can be used for cheap boxing, sheathing, crating, etc. Worm holes are not to be considered defects, and unsound lumber with sufficient substance to hold nails admitted.

STRIPS.

Strips shall be measured at the narrow end and tallied lengths separate on the half and even inches. In event of beveled edges, the narrow face shall be measured.

Bright sap is no defect.

Clear Face Strips.

Lengths: 6 feet and over, admitting 15% of odd lengths; 25% may be 6, 7 and 8 feet, and not to exceed 5% under 8 feet.

Widths: 2, 2½, 3, 3½, 4, 4½, 5 and 5½ inches.

Thicknesses: Standard.

Each piece must show one clear face, free from all defects.

No. 1 Common Strips.

Lengths: 4 feet and over, admitting 15% of odd lengths; 25% may be 4, 5, 6, 7 and 8 feet, and not to exceed 5% under 8 feet.

Widths: 2, 2½, 3, 3½, 4, 4½, 5 and 5½ inches.

Thicknesses: Standard.

This grade must work 66-2/3% clear face in not more than two pieces. No piece or cutting admitted which is less than 3 feet long and 2 inches wide.

No. 2 Common Strips.

Lengths: 4 feet and over, admitting 15% of odd lengths; 25% may be 4, 5 and 6 feet, and not to exceed 10% under 6 feet.

Widths: 2, 2½, 3, 3½, 4, 4½, 5 and 5½ inches.

Thicknesses: Standard.

This grade must work 50% clear face. No piece or cutting to be considered less than 2 feet long and 2 inches wide.

Sound discolored sap is no defect.

LOCUST.

Locust to be graded same as plain Oak and standard grades shall be Fas, No. 1, Common No. 2 Common No. 3 Common and No. 4 Common.

QUARTER SAWED OAK RED OR WHITE

General Instructions and the following rules are to govern the inspection:

Standard Grades: Fas, Step Plank, Selects, No. 1 Common, No. 2 Common, No. 3 Common, No. 4 Common.

Firsts and Seconds (Fas).

Firsts and Seconds are combined as one grade, and must show figure covering at least 90% of the face side.

Lengths: 8 feet and over, admitting 15% of odd lengths; 20% may be 8, 9 and 10 feet, and not to exceed 5% under 10 feet.

Widths: 6 inches and over.

Thicknesses: Standard.

Firsts shall be 6 inches and over wide, 10 feet and over long, and will admit standard defects as follows:

6 to 7 inches wide, none.

8 inches and over wide, one.

Seconds are 6 inches and over wide, 8 feet and over long, and will admit standard defects as follows:

6 to 7 inches wide, one.

8 to 10 inches wide, two.

11 to 13 inches wide, three.

14 to 16 inches wide, four.

As widths increase, defects may increase in proportion.

One inch of bright sap is not a defect; each additional inch of sap to be considered as one standard defect.

Splits not to exceed one-sixth the length of the piece admitted and to be considered as one standard defect and not over 20% of the whole in either quality may be so split.

STEP PLANK.

Grades: Firsts and Seconds and No. 1 Common.

Lengths: 4 feet and over, admitting 10% of odd lengths.

Widths: 10 to 15 inches.

Thicknesses: 1, 1¼, 1½ and 2 inches.

Firsts and Seconds (Fas). Step Plank.

Firsts and Seconds are combined as one grade, and must show one face and one edge practically free from all defects. The other side and other edge may contain sound defects that will not materially weaken the strength of the piece

75% of the face side must show figure.

10 feet and over long may have one split not exceeding 12 inches in length.

QUARTERED RED OR WHITE OAK.

No. 1 Common Step Plank.

No. 1 Common will include all lumber not up to the grade of Firsts and Seconds, that can be used for Step Plank without waste of more than one-third of the piece.

No piece or cutting to be less than 4 feet long by the full width of the piece.

Selects.

Lengths: 6 feet and over, admitting 15% of odd lengths; not over 30% under 12 feet, and not to exceed 5% of 6 and 7 feet.

Widths: 5 inches and wider.

Thicknesses: Standard.

Bright sap is not a defect.

Inspection to be made from the good side of the piece. Pieces 6 feet and 7 feet must be clear one face and sound on the reverse side.

Pieces 5 inches and over wide, 8 feet and over long, must grade not below seconds on the best face. The reverse side of pieces 8 feet and over long, must work at least 80% sound.

This grade may also include pieces other than those described above, below the grade of seconds, that will work at least 80% clear face, as follows: 12 feet and shorter, 2 cuttings; 13 feet and longer, 3 cuttings.

The smallest cutting allowed must contain 144 square inches. It must not be shorter than 18 inches, nor narrower than 5 inches.

No. 1 Common.

Lengths: 4 feet and over, admitting 15% of odd lengths; 25% may be 4, 5, 6, 7 and 8 feet, and not to exceed 5% under 8 feet.

Widths: 3 inches and over.

Thicknesses: Standard.

Bright sap is not a defect in this grade.

4-6-foot lengths must be clear one face up to 8 inches wide; over 8 inches will admit one standard defect.

Other widths and lengths must work 66 2/3% clear figured face cutting as follows:

Widths	Lengths	No. of Pieces
3 to 11 inches	7 to 11 feet	2
3 to 11 inches	12 to 16 feet	3
3 to 11 inches	17 to 20 feet	4
12 to 15 inches	7 to 11 feet	3
12 to 15 inches	12 to 16 feet	4
12 to 15 inches	17 to 20 feet	5
16 inches and over	7 to 11 feet	4
16 inches and over	12 to 16 feet	5
16 inches and over	17 to 20 feet	6

The smallest cutting allowed must contain 144 square inches, and it must not be shorter than 18 inches nor narrower than 3 inches.

QUARTERED RED OR WHITE OAK.

No. 2 Common.

Lengths: 4 feet and over, admitting 15% of odd lengths; 25% may be 4, 5 and 6 feet, and not to exceed 10% under 6 feet.

Widths: 3 inches and over.

Thicknesses: Standard.

Bright sap is not a defect.

Pieces 4 feet long must be clear one face.

Pieces 5 feet and longer must work at least 50% clear figured face cuttings.

No piece or cutting can be shorter than 18 inches nor narrower than 3 inches.

All cuttings must show figure on face side.

No. 3 Common.

Lengths: 4 feet and over, admitting 15% of odd lengths.

Widths: 3 inches and over.

Thicknesses: Standard.

Each piece must contain at least 50% sound figured cuttings.

No piece or cutting can be shorter than 18 inches nor narrower than 3 inches and must contain 72 square inches.

No. 4 Common.

No. 4 Common shall include all lumber not up to the grade of No. 3 Common that can be used for cheap boxing, sheathing, crating, etc. Worm holes are not to be considered defects, and unsound lumber with sufficient substance to hold nails admitted.

STRIPS.

Strips shall be measured at the narrow end and tallied lengths separate on the half and even inches. In event of beveled edges, the narrow face shall be measured.

Clear Face Strips.

Must show figure covering at least 90% of the face side.

Lengths: 6 feet and over, admitting 15% of odd lengths; 25% may be 6, 7 and 8 feet, and not to exceed 5% under 8 feet.

Widths: 2, 2½, 3, 3½, 4, 4½, 5 and 5½ inches.

Thicknesses: Standard.

Each piece must show one clear figured face free from all defects, excepting one-half inch of bright sap on 2, 2½, 3 and 3½-inch strips, and 1 inch on 4, 4½, 5 and 5½-inch strips.

QUARTERED RED OR WHITE OAK.

No. 1 Common Strips.

Lengths: 4 feet and over, admitting 15% of odd lengths; % may be 4, 5, 6, 7 and 8 feet, and not to exceed 5% ıder 8 feet.
Widths: 2, 2½, 3 and 3½ inches.
Thicknesses: Standard.
Bright sap is not a defect.
Each piece must work 66 2/3% clear figured face in not ore than two pieces. No piece or cutting to be considered ich is less than 3 feet long and 2 inches wide.

No. 2 Common Strips.

Lengths: 4 feet and over, admitting 15% of odd lengths; % may be 4, 5 and 6 feet, and not to exceed 10% under eet.
Widths: 2, 2½, 3, 3½, 4, 4½, 5 and 5½ inches.
Thicknesses: Standard.
This grade must work 50% clear figured face. No piece cutting to be considered which is less than 2 feet long by nches wide. Sound discolored sap is no defect.

STANDARD SPECIFICATIONS FOR RAILROAD CONSTRUCTION OAK TIMBER AND SOUND SQUARE EDGE OAK.

GENERAL INSTRUCTIONS.

Those who are not familiar with the anatomy of the oa tree should, when reading over these rules, take into cor sideration that the rule describes the poorest piece tha goes into the grade and that a large per cent is above th grade described.

Definition of Oak for Construction Purposes.

The term "Construction Oak" means all such product of Oak in which the strength and durability of the timbe is the controlling element in its selection and use. Th following is a list of products which are recommended fo consideration as "Construction Oak:"

Firsts are to be sound and free from heart, shakes an checks, but may have other defects, as follows:

I.—CONSTRUCTION OAK.

(A) **Trestle and Bridge Timbers:** Mud Sills, Stringers Caps, Posts, Bracing, Bridge Ties, Guard Rails Struts and Girts, Sash and Sway Braces.

(B) **Docking and Platform Timbers:** Mud Sills, Posts Bracing, Caps, Stringers, Joists, Dock and Platform or Flooring Plank and Wales.

(C) **Platform or Flooring Plank** can be either square edged or matched.

(D) **Locomotive Timbers:** Sills, End and Truck Timbers.

(E) **Car Timbers:** Car Framing, including Upper Framing, Car Sills, End and Truck Timbers, Car Decking, Inside Lining.

(F) **Ties:** Switch Ties, Cross Ties.

(G) **Framing for Building:** Mud Sills, Posts, Girders Framing, Joists, etc.

(H) **Bridge and Crossing Plank:** Railroad Crossing Plank, Bridge Floor Planking.

CONSTRUCTION OAK TIMBERS.

(I) **Sheet Piling:** Same as Crossing Plank, except may contain unlimited amount of heart.

(J) **Round Piling.**

(K) **Cattle Guards.**

(L) **Track or Bumper Post.**

Items A, B, C, G hereafter designated as Structural Oak.

II.—STANDARD DEFECTS.

Definition of "Defect:" Fault, Blemish, Mark of imperfection that will materially injure the strength. Measurements which refer to the diameter of knots or holes shall be considered as referring to the mean or average diameter.

II.—(A) KNOTS.

(1) **Sound Knot.** A Sound Knot is one which is solid across its face, and which is as hard as the wood surrounding it; it may be any color and contain checks.

(2) **Loose Knot.** A Loose Knot is one not firmly held in place by growth or position.

(3) **Pith Knot.** A Pith Knot is a Sound Knot with a pith hole not more than ¼″ in diameter in the center.

(4) **Rotten Knot.** A Rotten Knot is one that is not sound and not as hard as the wood surrounding it.

(5) **Pin Knot.** A Pin Knot is a Sound Knot not over ¾″ in diameter.

(6) **Standard Knot.** A Standard Knot is a knot not over 2″ in diameter.

(7) **Large Knot.** A Large Knot is a Sound Knot more than 2″ in diameter.

(8) **Round Knot.** A Round Knot is one which is oval or circular in form.

(9) **Spike Knot.** A Spike Knot is one sawn in lengthwise direction. The mean or the average width shall be considered in measuring this knot.

(10) **Bird Peck.** Bruises apparently caused by bird pecks during the growth process of the timber. Considered no defect.

II.—(B) WORM DEFECTS.

(1) **Pin Worm Holes.** Pin Worm Holes are very small holes caused by minute insects or worms. These holes usually are not over 1/16″ in diameter, or smaller, and the wood surrounding them is sound and does not show any evidence of the worm hole having any effect on the wood other than the opening.

CONSTRUCTION OAK TIMBERS.

(2) Spot Worm Defects. (Also known as Flag Worm Defects.) Spot Worm Defects are caused like Pin Worm Holes by minute insects or worms working on the timber during its growth. The size of the hole is about the same as Pin Worm Holes, but the surrounding wood shows a colored spot as evidence of the defect. This spot is usually sound, and does not affect the strength of the piece.

(3) Grub Worm Holes. Grub Worm Holes are usually from about 1/8″ to 3/16″ in width, and vary in length from about 1″ to 1¼″ or 1½″ and are caused by grubs working in the wood.

(4) Wooden Rafting Pin Holes. This defect sometimes appears on river timber which has been rafted and holes bored in the solid wood for tying the timber, and a solid plug or pin driven in the hole, filling it completely. These defects must be treated and considered the same as Knot Defects. Ordinary Metal, Rafting Pin or Chain Dog Hole is considered no defect.

II.—(C) SAP.

Definition of "Sap:" The Alburnum of a tree—the exterior part of the wood next to the bark—Sap Wood, not considered a defect.

Sound Heart: The term Sound Heart is used in these rules whenever heart of piece is split or opened and shows on outside of piece and its condition is sound and solid, not decayed. Openings between annual rings or checks not considered a defect.

II.—(D) WANE.

Wane is bark or lack of wood from any cause on edges of timber.

II.—(E) SHAKES.

Definition of "Shakes:" Shakes are splits or checks in the timber which usually cause a separation of the wood between the annual rings.

(1) Ring Shakes. Ring Shakes are openings between the annual rings usually showing only on the end of timber.

(2) Through Shakes. Through Shakes are shakes which extend between two faces of the timber.

(3) Checks. A small crack in the wood due to seasoning, not considered a defect.

II.—(F) GRAIN.

Crooked or Cross Grain. Crooked or Cross Grain crosses the piece within a section 24″ in running length of the

piece. This is only considered a defect in certain smaller sizes of dimension for specific purposes.

II.—(G) ROT.

Any form of decay which may be detected as giving the timber a doty or rotten texture is a rot defect, including what is commonly known as dry rot. Water stain, or what are sometimes called scalded or burnt spots, usually caused by timber lying in the water under certain conditions before it is sawed, and burnt spots where the timber is improperly piled green, not considered defects, as they do not affect the strength of the piece.

III.—STANDARD NAMES FOR CONSTRUCTION OAK.

Standard Names for Construction Oak Timber: White Oak and Red Oak. Unless specially mentioned, these terms include the following:

White Oak—

White Oak.
Chestnut or Tanbark Oak.
Burr or Mossy Cup Oak.
Rock Oak.
Post or Iron Oak.
Overcup Oak.
Live Oak.
Swamp Post Oak.
Basket or Cow Oak.
Yellow or Chinquapin Oak.

Red Oak—

Red Oak.
Pin Oak.
Black Oak.
Water Oak.
Willow Oak.
Spanish Oak.
Scarlet Oak.
Turkey Oak.
Black Jack or Barn Oak.
Shingle or Laurel Oak.

Term.—Mixed Oak means any kind of Oak.

V.—STANDARD SPECIFICATIONS FOR STRUCTURAL OAK TIMBERS

(1) General Requirements. Except as noted, all Structural Timbers shall be White Oak, to be sound timber and sawed specified sizes; free from ring shakes and crooked grain, rotten knots, large knots in groups, rot, dote and

wane in amounts greater than allowed in these specifications.

(2) **Boxed Hearts** are permitted in pieces of 5x5 square and larger. The center of the heart should be boxed as near the center of the piece as practical, and not to exceed 30% of the pieces can have the center of the heart nearer than 1½" from any face; 20% may show one heart face, corner or edge, not to exceed 75% of the length of the piece.

(3) Wane.

Explanatory:

The term 20% of number of pieces or amount shipped refers to each item and size of each car shipped.

(a) Pieces 5x5 to 8x8 square may show 1" wane, side measurement on any two corners or edges, and this wane not to exceed more than 25% of the length of the piece singly, or 50% in aggregate. In the absence of wane on all corners excepting one, the one corner may contain wane 50% of the length of the piece as above described; not to exceed 20% of number of pieces may have this defect.

(b) Pieces over 8x8 including 12x12 square may show 1½" wane side measurement edge of any two corners or edges, and this wane not to exceed more than 33 1-3% of the length of the piece singly, or 66 2/3% in aggregate. In the absence of wane on all corners excepting one, the one corner may contain wane 66 2/3% of the length of the piece as above described; not to exceed 20% of number of pieces may have this defect.

(c) Pieces over 12x12 square may show 1¾" side measurement any two corners or edges, and this wane not to extend more than 40% of the length of the piece singly, or 80% in aggregate. In the absence of wane on all corners excepting one, the one corner may contain wane 80% of the length of the piece as above described; not to exceed 20% of number of pieces may have this defect.

(d) In event that pieces have two faces as wide as above described and two faces narrower, the proportion of the amount of wane is admissible.

(e) Pieces 1″ to 5″ thick, not exceeding 8″ wide, are governed by defect specifications above mentioned with the exception that they shall not contain wane, and not to exceed 20% of pieces 2″ and thicker may show sound heart on one face; pieces under 2″ thick must be free of heart. Pieces 8″ and wider may contain wane as per paragraphs **b** and **d.**

(f) Rough sizes of Structural Timber shall not vary more than ¼″ scant of specified size. Dressed sizes may be ½″ scant after dressing.

V.—(A) LOCOMOTIVE TIMBER OAK. PASSENGER COACH DIMENSION OAK. REFRIGERATOR CAR DIMENSION OAK.

Thickness cut to order, widths cut to order, lengths cut to order. Unless otherwise noted, must be cut from White Oak. This stock, wherever practical, should be cut outside the heart, and must be free of heart shake in pieces under 6x6 square. No attempt should be made to box the heart in pieces smaller than 5x7 unless heart is very small and tight. When heart is well boxed it must be firm and tight, and the center of the heart must not be nearer than 2″ from any face. Must be sawed full to sizes, with square edges, and cut from sound timber, and free from worm holes, with the exception of a few small pin-worm holes well scattered, and an occasional spot worm. None of these defects, however, to affect the serviceability of the piece for the purpose intended. Must be free from split, rot or dote, large, loose, rotten or unsound knots; or, in other words, free of all defects affecting the strength and durability of the piece; sound standard knots well scattered not considered a defect.

V.—(B) FREIGHT CAR TIMBERS.

Freight Car Dimensions, including all cars other than Refrigerator and Passenger Cars. Sizes cut to order. Unless otherwise ordered must be sawed from good Merchantable White or Red Oak Timber. This stock must be free from rot, shakes and splits, large, loose, rotten or unsound knots, any of which will materially impair the strength and durability of the pieces for purposes intended. This stock is intended to work full size and length without waste

CONSTRUCTION OAK TIMBERS.

for side Posts, Braces, End Sills, End Plates, Drafting Timbers, Cross Ties, etc., used in the construction of ordinary Freight or Stock Cars. On pieces 3″ x 4″ or equivalent girth measure and larger (nothing under 2″ thick) heart check showing on one corner or side admitted on 20% of the pieces in each car shipment. Well boxed, sound hearts admitted in this material in pieces 5x6 and larger.

On pieces 3x4 to 6x6 inclusive, or equivalent girth measurement and larger (nothing under 2″ thick) in absence of heart defects, wane on one corner, ¾″ side measurement admitted.

Pieces over 6″ x 6″ square may contain 1″ wane side measurement on one corner, with other conditions same as 3x4 to 6x6 sizes.

V.—(C) TIES.

(1) **Switch Ties Sawed.** Thicknesses cut to order; widths cut to order; lengths cut to order; unless noted, to be White Oak. Must contain three sound solid sides. One face or one corner (not both) may show sound heart. Large sound knots, pin, spot or an occasional grub worm hole not considered a defect. Sizes may vary ½″ from specified sizes.

(2) **Cross Ties Sawed.** Specifications same as Switch Ties.

V.—(D) BRIDGE, DOCK, CROSSING PLANK.

Lengths, cut to order.
Widths, cut to order.
Thicknesses, cut to order.

Sizes cut to order, probably 2″, 3″ and 4″ thick, 6″, 8″, 10″ and 12″ wide, 12′, 14′ and 16′ long.

This product is intended to work full one good sound face, and this face side must be square edge. Sound knots small pin and spot worm holes no defect on face side.

Must be free from rot and shake; practically square edges, admitting 1″ of wane on each edge of reverse face, running two-thirds the length. Sound hearts on one side, rafting pin holes, knot holes, or grub holes not exceeding 2″ in diameter admitted.

V.—(E) SHEET PILING.

Same as V (D), except that it may contain sound heart or heart check.

V.—(F) CATTLE GUARDS.

To be governed by specifications for Construction Oak, reference IV.

V.—(G) TRACK END OR BUMPING POSTS.

To be governed by specifications for Structural Timbers, reference IV.

SOUND, SQUARE EDGE OAK.

Timbers: The center of the heart should be boxed as near the center of the piece as practical, not over 20% may show heart not to exceed 75% of the length of the piece in the aggregate. Not over 20% may show wane, not exceeding one-sixth of the width of the piece in the aggregate.

Surface shake extending not over one-sixth the length of the piece, worm holes, knots, splits or other defects that do not materially impair the strength of the piece in working full length and width permitted. Ordinary season checks are no defect.

Plank: To have one sound face and two square edges on the face side, the face to be free from large unsound knots, rot or rafting pin holes, but will admit sound knots and other defects, none of which shall exceed in extent or damage a sound knot 2″ in diameter in pieces 8″ and under wide, and a sound knot 3″ in diameter in pieces over 8″ wide. The reverse side will admit heart and other defects that do not materially weaken the piece.

COTTONWOOD

General Instructions and the following rules are to govern the inspection:

Slightly discolored sap which will dress up sound, not necessarily bright, but not black, admitted in any grade.

Standard Grades: Panel, Wide No. 1, Wagon Box Boards, Firsts and Seconds, No. 1 Common, No. 2 Common, No. 3 Common, No. 4 Common.

The Standard lengths and thicknesses are as designated under the heading of each grade.

Panel.

Lengths: 8 feet and over, admitting 15% of odd lengths; 20% may be 8, 9 and 10 feet, and not to exceed 10% under 10 feet.

Widths: 18 to 23 inches; 24 to 27 inches, and 28 inches and over.

Thicknesses: Standard.

8-foot lengths must be clear.

75% of the total quantity must be clear of knots on both sides; the balance of the quantity may contain three defects, provided 90% of the piece can be used for panels 4 feet and longer in the full width of the board.

Splits 6 inches long in one end not to be considered a defect in any board; splits longer than 6 inches not to be admitted.

Wide No. 1.

Lengths: 8 feet and over, admitting 15% of odd lengths; 20% may be 8, 9 and 10 feet, and not to exceed 10% under 10 feet.

Widths: 18 to 23 inches; 24 to 27 inches, and 28 inches and over.

Thicknesses: Standard.

8-foot lengths will admit two standard defects.

10-foot lengths and over will admit three standard defects.

Splits 15 inches in length admitted in not to exceed 10% of the pieces.

Wagon Box Boards.

Widths: Wide, 13 to 17 inches. Narrow, 9 to 12 inches.

Lengths: 11 to 16 ft.

Thickness: Must be 1 inch thick when shipping dry.

Defects: Bright or sound discolored sap or a few scattered pin worm holes admitted.

11 ft. lengths will admit 3 inch splits in one end, or their equivalent in one or both ends.

12, 13, 15 and 16 ft. lengths will admit of a 12 inch split in one end, or its equivalent in one or both ends; 14 ft. lengths will admit of splits not to exceed 6 inches in one end or its equivalent in both ends; otherwise, each piece in

COTTONWOOD.

11 to 13 ft. lengths may contain defects that do not prevent the piece from cutting one side; or in each piece 14 to 16 ft. long, one side and one end; sides to work 10 ft. 6 inches long; ends to work 3 ft. 6 inches long by the full width of the piece. Each side and end may contain one sound standard defect, or its equivalent, showing on one side.

Note.—Five percent. in feet of a shipment that can be reduced in measurement by cutting the end or edge or both to a size ordered must be accepted and measured as Boxboards, separate tally to be kept of such boards, showing reduction and measurement.

Note.—Inspectors are cautioned that "wooly" Cottonwood and lumber so warped that it cannot be used for Boxboards, must be excluded from this grade.

Firsts and Seconds (Fas).

Firsts and Seconds are combined as one grade.

Lengths: 8 feet and over, admitting 15% of odd lengths; 20% may be 8, 9 and 10 feet, and not to exceed 5% under 10 feet.

Widths: 6 inches and over.

Thicknessess: Standard.

Firsts shall be 6 inches and over wide, 10 feet and over long, and free from all defects except in pieces 8 inches and over wide, which shall admit one standard defect.

Seconds shall be 6 inches and over wide, 8 feet and over long, and will admit standard defects as follows:

6 to 7 inches wide, one.

8 to 10 inches wide, two.

11 to 13 inches wide, three.

14 to 15 inches wide, four.

16 to 17 inches wide, five.

As widths increase defects may increase in proportion.

Splits not to exceed one-sixth the length of the piece admitted, and are to be considered as one standard defect, but not over 20% of the whole may be so split.

No. 1 Common.

Lengths: 4 feet and over, admitting 15% of odd lengths; 25% may be 4, 5, 6, 7 and 8 feet, and not to exceed 5% under 8 feet.

Widths: 4 inches and over.

Thicknesses: Standard.

Pieces 4-6 feet long must be clear one face up to 8 inches wide; over 8 inches wide will admit one standard defect.

Other widths and lengths must work 66 2/3% clear face as follows:

COTTONWOOD.

Widths	Lengths	No. of Pieces
4 to 11 inches	7 to 11 feet	2
4 to 11 inches	12 to 16 feet	3
4 to 11 inches	17 to 20 feet	4
12 to 15 inches	7 to 11 feet	3
12 to 15 inches	12 to 16 feet	4
12 to 15 inches	17 to 20 feet	5
16 inches and over	7 to 11 feet	4
16 inches and over	12 to 16 feet	5
16 inches and over	17 to 20 feet	6

The smallest cutting allowed must contain 144 square inches, and it must not be shorter than 18 inches nor narrower than 4 inches.

Sound discolored sap no defect.

No. 2 Common.

Lengths: 4 feet and over, admitting 15% of odd lengths; 25% may be 4, 5 and 6 feet, and not to exceed 10% under 6 feet.

Widths: 3 inches and over.

Thicknesses: Standard.

No. 2 Common shall include all lumber that will not come up to the grade of No. 1 Common, and that will work at least 50% into sound cuttings.

No piece or cutting can be shorter than 18 inches nor narrower than 3 inches, and must contain 144 square inches.

Sound discolored sap no defect.

No. 3 Common.

Lengths: 4 feet and over, admitting 15% of odd lengths.

Widths: 3 inches and over.

Thicknesses: Standard.

Pieces 4 feet or over long shall work at least 25% into sound cuttings.

No piece or cutting to be considered which is less than 3 inches wide and 2 feet long.

No. 4 Common.

No. 4 Common shall include all lumber not up to the grade of No. 3 Common that can be used for cheap boxing, sheathing, crating, etc. Worm holes are not to be considered defects, and unsound lumber with sufficient substance to hold nails admitted.

SHORTS.

Lengths: 12 to 42 inches—in multiples of 6 inches.

Widths: 3 inches and over.

Grades: No. 1 and No. 2.

COTTONWOOD.

No. 1.

No. 1 will admit not to exceed one 6-inch split and two standard defects.

No. 2.

No. 2 shall work 50% into sound cuttings.

Wane admitted not to exceed 3 inches in width and one-third the length of the piece on one edge, or the equivalent on both edges.

This is to be used for Box Shook or cutting up purposes.

SQUARES.

No. 1 shall be practically clear of knots.

No. 2 shall admit of sound knots, stained sap, small season checks, splits not exceeding 12 inches in length, and pin-worm holes.

COTTONWOOD, DRESSED OR WORKED.

General Instructions.

1. Dressed Cottonwood shall be inspected from the best or face side. The reverse side may contain defective dressing, but no other defects that would not go in the grade.

2. Slightly chipped grain on the face side admitted, provided it does not exceed in the aggregate 6 inches square in Firsts and Seconds 8 to 12 inches wide; 10 inches square in Firsts and Seconds 13 inches and wider; 12 inches square in No. 1 Common 6 to 12 inches wide, and 16 inches square in No. 1 Common 13 inches and wider.

3. Imperfect manufacture in Dressed Stock, such as torn grain, broken knots, mismatched, insufficient tongue or groove, shall be considered defects and will reduce the grade accordingly.

4. Partition, Ceiling, Flooring or Drop Siding, having less than 3/16-inch tongue shall not be admitted in any grade above No. 3.

5. Wane on the reverse side not exceeding one-third the width, and running not to exceed one-sixth the length of any one piece, provided the wane does not extend into the tongue, or over one-half the thickness below the groove, will be admitted.

Standard Sizes of Dressed Cottonwood.

FINISHING: ½-inch S2S to 5/16-inch; ⅝-inch S2S to 7/16-inch; ¾-inch S2S to 9/16-inch; 1-inch S2S to 13/16-inch; 1¼-inch S2S to 1 3/32-inch; 1½-inch S2S to 1 11/32-inch; 2-inch S2S to 1¾-inch.

COTTONWOOD (Dressed).

PARTITION: Dressed to 13/16-inch thick; 2¼-inch; 3¼-inch; 4¼-inch, and 5¼-inch face width.

CEILING: ⅜-inch dressed to 5/16-inch; ½-inch dressed to 7/16-inch; ⅝-inch dressed to 9/16-inch; ¾-inch dressed to 11/16-inch—same widths as Partition.

Bevel Siding and Weatherboarding.

Bevel Siding is made from 1x4-inch, 1x5-inch, and 1x6-inch strips S4S to 13/16x3⅜-inch; 13/16x4⅜-inch and 13/16x5⅜-inch, resawed on a bevel.

No. 1 GRADE. Lengths: 8 to 20 feet, admitting 15% of odd lengths.

Will allow sound sap without limit, but is otherwise clear except small defects which the lap will cover.

No. 2 GRADE. Lengths: 6 to 20 feet, admitting 15% of odd lengths.

May contain imperfections in working, or other defects which can be removed in two cuts without waste of more than 10% of the length of any one piece.

No. 3 GRADE. Lengths: 4 to 20 feet, admitting 15% of odd lengths.

Permits all classes of defects, but must work without waste of more than one-third of the contents of any one piece.

Drop Siding and Ceiling.

No. 1 GRADE. Lengths: 8 to 20 feet, admitting 15% of odd lengths.

Shall be one face clear and be otherwise sound.

No. 2 GRADE. Lengths: 6 to 20 feet, admitting 15% of odd lengths.

May contain imperfections in working and unsound defects which can be removed in two cuts without waste of more than 10% of the length of any one piece.

No. 3 GRADE. Lengths: 4 to 20 feet, admitting 15% of odd lengths.

Permits all classes of defects, but must work without waste of more than one-third the contents of any one piece.

Partition.

No. 1 GRADE. Lengths: 8 to 20 feet, admitting 15% of odd lengths.

Must be clear of knots on both sides.

No. 2 GRADE. Lengths: 6 to 20 feet, admitting 15% of odd lengths.

COTTONWOOD. (Dressed)

May contain imperfections in working, and other defects which can be removed in two cuts without waste of more than 10% of the length of any one piece.

No. 3 GRADE. Lengths: 4 to 20 feet, admitting 15% of odd lengths.

Permits all classes of defects, but must work without waste of more than one-third of the contents of any one piece.

Mouldings.

No. 1.

Lengths: 8 feet and over, admitting 15% of odd lengths; 20% may be 8, 9 and 10 feet, with not to exceed 10% under 10 feet.

Widths, thickness and pattern to be governed by Universal Moulding Book, and to be graded as follows:

Bright sap or slightly discolored sap shall be admitted without limit; otherwise clear, except slightly chipped grain not to exceed one-twelfth the length of any one piece.

No. 2.

Lengths: 6 feet and over, admitting 15% of odd lengths; 20% may be 6, 7 and 8 feet, with not to exceed 10% under 8 feet.

Widths, thickness and pattern to be governed by Universal Moulding Book, and to be graded as follows:

No. 2 will include all moulding that will not come up to the grade of No. 1 that will work 50% clear in pieces 4 feet and longer. Sound discolored sap is no defect.

MAGNOLIA.

Magnolia to be graded same as Cottonwood, and standard grades shall be Box Boards, Fas, No. 1 Common, No. 2 Common, No. 3 Common, No. 4 Common.

WILLOW.

Willow to be graded same as Cottonwood and Standard Grades shall be Fas, No. 1 Common, No. 2 Common, No. 3 Common and No. 4 Common.

PLAIN RED GUM

General Instructions and the following rules to govern the inspection.

Standard Grades, Figured Wood, Fas, Select, No. 1 Common.

Thicknesses: Standard.

Plain Sawed Red Gum (Figured Wood).

Figure is required in these grades and each piece shall be especially selected for markings and color tones producing a variegated effect. In the grade of Firsts and Seconds 90% of one face of each piece, and in the Common grades the face side of each cutting to show such markings. Otherwise the regular rules for grading Plain Sawed Red Gum and Quarter Sawed Red Gum shall apply.

Note: In the common grades color shall be determined from the red face.

Firsts and Seconds (Fas).

Firsts and Seconds Red are combined as one grade. This grade shall show one red face.

Lengths: 8 feet and over, admitting 15% of odd lengths; 20% may be 8, 9 and 10 feet, and not to exceed 5% under 10 feet.

Widths: 6 inches and over.

Thicknesses: Standard.

Firsts shall be 6 inches and over wide, 10 feet and over long, and free from all defects except in pieces 8 inches and over wide, which will admit one standard defect.

Seconds are 6 inches and over wide, 8 feet and over long, and will admit standard defects as follows:

6 to 7 inches wide, one.
8 to 10 inches wide, two.
11 to 13 inches wide, three.
14 to 15 inches wide, four.
16 to 17 inches wide, five.

As widths increase defects may increase in proportion.

Splits not to exceed one-sixth the length of the piece admitted, and to be considered one standard defect, and not over 20% of the whole in either quality may be so split.

Selects.

Lengths: 6 ft. and over, admitting 15% of odd lengths, not over 30% under 12 ft. and not to exceed 5% of 6 and 7 ft.

Widths: 5 inches and over.

Thicknesses: Standard.

Inspection to be made from the good side of the piece. Pieces 6 ft. and 7 ft. must be clear red one face and sound on the reverse side.

Pieces 6 inches and over wide, 8 ft. and over long, must grade not below seconds on the best face. The reverse side of pieces 8 ft. and over long, must work at least 80% sound.

This grade may also include pieces other than those described above, below the grade of seconds, that will work at least 80% clear red face, as follows: 12 ft. and shorter, 2 cuttings; 13 ft. and longer, 3 cuttings.

The smallest cutting allowed must contain 144 square inches. It must not be shorter than 18 inches, nor narrower than 5 inches.

PLAIN RED GUM

No. 1 Common.

In this grade all cuttings shall show one red face.

Lengths: 4 feet and over, admitting 15% of odd lengths; 25% may be 4, 5, 6, 7 and 8 feet, and not to exceed 5% under 8 feet.

Widths: 4 inches and over.

Thicknesses: Standard.

Pieces 4-6 feet long must be clear one face up to 8 inches wide; over 8 inches will admit one standard defect.

Other widths and lengths must work at least 66 2/3% clear face, as follows:

Widths	Lengths	No. of Pieces
4 to 11 inches	7 to 11 feet	2
4 to 11 inches	12 to 16 feet	3
4 to 11 inches	17 to 20 feet	4
12 to 15 inches	7 to 11 feet	3
12 to 15 inches	12 to 16 feet	4
12 to 15 inches	17 to 20 feet	5
16 inches and over	7 to 11 feet	4
16 inches and over	12 to 16 feet	5
16 inches and over	17 to 20 feet	6

The smallest cutting allowed must contain 144 square inches, and it must not be shorter than 18 inches nor narrower than 4 inches.

QUARTERED RED GUM.

General Instructions and the following rules to govern the inspection.

Standard Grades: Figured Wood, Fas, Select, No. 1 Common, No. 2 Common.

Thicknesses: Standard.

Quarter Sawed Red Gum (Figured Wood).

Figure is required in these grades and each piece shall be especially selected for markings and color tones producing a variegated effect. In the grade of Firsts and Seconds 90% of one face of each piece, and in the Common grades the face side of each cutting to show such markings. Otherwise the regular rules for grading Plain Sawed Red Gum and Quarter Sawed Red Gum shall apply.

80% of the width of each piece must have the radial grain running 45 degrees or less with one surface of the piece.

Firsts and Seconds (Fas).

Firsts and Seconds are combined as one grade.

Lengths: 8 feet and over, admitting 15% of odd lengths; 20% may be 8, 9 and 10 feet, and not to exceed 5% under 10 feet.

Widths: 5 inches and over.

5 inches must be clear.

Firsts shall be 6 inches and over wide, 10 feet and over long, and free from all defects, except pieces 8 inches and over wide, which will admit one standard defect.

QUARTERED RED GUM.

Seconds are 5 inches and over wide, 8 feet and over long and will admit standard defects as follows:

6 to 7 inches wide, one.
8 to 10 inches wide, two.
11 to 13 inches wide, three.
14 to 15 inches wide, four.
16 to 17 inches wide, five.

As widths increase, defects may increase in proportion. Splits not to exceed one-sixth the length of the piece admitted, and to be considered one standard defect, and not over 20% of the whole in either quality may be so split.

Selects.

Lengths: 6 ft. and over, admitting 15% of odd lengths, not over 30% under 12 ft. and not to exceed 5% of 6 and 7 ft.

Widths: 5 inches and over.

Thicknessess: Standard.

Inspection to be made from the good side of the piece. Pieces 6 ft. and 7 ft. must be clear red one face and sound on the reverse side.

Pieces 6 inches and over wide, 8 ft. and over long, must grade not below seconds on the best face. The reverse side of pieces 8 ft. and over long, must work at least 80% sound, quartered.

This grade may also include pieces other than those described above, below the grade of seconds, that will work at least 80% clear quartered face, as follows: 12 ft. and shorter, 2 cuttings; 13 ft. and longer, 3 cuttings.

The smallest cutting allowed must contain 144 square inches. It must not be shorter than 18 inches, nor narrower than 5 inches.

No. 1 Common.

Lengths: 4 feet and over, admitting 15% of odd lengths; 25% may be 4, 5, 6, 7 and 8 feet, and not to exceed 5% under 8 feet.

Widths: 4 inches and over.

Pieces 4-6 feet long must be clear one face up to 8 inches wide; over 8 inches will admit one standard defect.

Other widths and lengths must work at least 66-2/3% clear quartered face, as follows:

Widths	Lengths	No. of Pieces
4 to 11 inches	7 to 11 feet	2
4 to 11 inches	12 to 16 feet	3
4 to 11 inches	17 to 20 feet	4
12 to 15 inches	7 to 11 feet	3
12 to 15 inches	12 to 16 feet	4
12 to 15 inches	17 to 20 feet	5
16 inches and over	7 to 11 feet	4
16 inches and over	12 to 16 feet	5
16 inches and over	17 to 20 feet	6

The smallest cutting allowed must contain 144 square inches, and it must not be shorter than 18 inches nor narrower than 4 inches.

QUARTERED RED GUM.

No. 2 Common.

Lengths: 4 feet and over, admitting 15% of odd lengths; 25% may be 4, 5 and 6 feet, and not to exceed 10% under 6 feet.

Widths: 3 inches and over.

No. 2 Common shall include all lumber that will not come up to the grade of No. 1 Common that will work at least 50% into sound quartered cuttings. No piece or cutting can be shorter than 18 inches nor narrower than 3 inches, and must contain 144 square inches.

Black sap is not to be considered a defect in this grade.

SAP GUM

General Instructions and the following rules to govern the inspection.

Standard Grades: Panel, Wide No. 1, Wagon Box Boards, Fas., No. 1, No. 2, No. 3, No. 4, Shorts.

Thicknesses: Standard.

Panel.

Lengths: 8 feet and over, admitting 15% of odd lengths; 20% may be 8, 9 and 10 feet, and not to exceed 10% under 10 feet.

Widths: 18 to 23 inches, 24 to 27 inches, and 28 inches and over.

Thicknesses: Standard, 5/8 to 2 inches.

8-foot lengths must be clear.

75% of the total quantity must be clear of knots on both sides; the balance of the quantity may contain three defects, provided 90% of the piece can be used for panels 4 feet and longer, in the full width of the piece. Splits 6 inches long in one end not to be considered a defect in any board; splits longer than 6 inches not to be admitted.

In this grade bright sap or discolored sap, if sound, is not considered a defect.

Wide No. 1.

Lengths: 8 feet and over, admitting 15% of odd lengths; 20% may be 8, 9 and 10 feet, and not to exceed 10% under 10 feet.

Widths: 18 to 23 inches, 24 to 27 inches, and 28 inches and over.

Thicknesses: Standard, 5/8 to 2 inches.

8-foot lengths will admit two standard defects.

10-foot lengths and over will admit three standard defects.

Splits 15 inches in length admitted, in not to exceed 10% of the pieces.

In this grade bright sap or discolored sap, if sound, is not considered a defect.

SAP GUM.

Wagon Box Boards

Widths: Wide, 13 to 17 inches. Narrow, 9 to 12 inches.

Lengths: 11 to 16 ft.

Thickness: Must be 1 inch thick when shipping dry.

Defects: Bright or sound discolored sap or a few scattered pin worm holes admitted.

11 ft. lengths will admit three inch splits in one end, or their equivalent in one or both ends.

12, 13, 15 and 16 ft. lengths will admit of a 12 inch split in one end, or its equivalent in one or both ends; 14 ft. lengths will admit of splits not to exceed 6 inches in one end or its equivalent in both ends; otherwise, each piece in 11 to 13 ft. lengths may contain defects that do not prevent the piece from cutting one side; or in each piece 14 to 16 ft. long, one side and one end; sides to work 10 feet 6 inches long; ends to work 3 feet 6 inches long by the full width of the piece. Each side and end may contain one sound standard defect, or its equivalent, showing on one side.

Note.—Five percent. in feet of a shipment that can be reduced in measurement by cutting the end or edge or both to a size ordered must be accepted and measured as Boxboards, separate tally to be kept of such boards, showing reduction and measurement.

Firsts and Seconds (Fas).

Firsts and Seconds Sap shall grade the same as Firsts and Seconds Red, except that bright sap or discolored sap, if sound, is not to be considered a defect in this grade.

No. 1 Common.

No. 1 Common Sap shall grade the same as Red Common, except that sound sap, regardless of discoloration, shall not be considered a defect in this grade.

No. 2 Common.

Lengths: 4 feet and over, admitting 15% of odd lengths; 25% may be 4, 5 and 6 feet, and not to exceed 10% under 6 feet.

Widths: 3 inches and over.

No. 2 Common shall include all lumber that will not come up to the grade of No. 1 Common Sap, and that will work at least 50% into sound cuttings. No piece or cutting can be shorter than 18 inches nor narrower than 3 inches, and must contain 144 square inches. Black sap not to be considered a defect in this grade.

SAP GUM.

No. 3 Common.

Lengths: 4 feet and over, admitting 15% of odd lengths

Widths: 3 inches and over.

No. 3 Common must contain at least 25% sound cuttings No piece or cutting to be considered which is less than 3 inches wide and 2 feet long.

Black sap is not to be considered a defect in this grade.

No. 4 Common.

No. 4 Common shall include all lumber not up to the grade of No. 3 Common that can be used for cheap boxing, sheathing, crating, etc. Worm holes are not to be considered defects and unsound lumber with sufficient substance to hold nails admitted.

SHORTS.

Lengths: 12 inches and up to 42 inches—in multiples of 6 inches.

Widths: 3 inches and over.

No. 1.

No. 1 will admit not to exceed one 6-inch split and two standard defects. In this grade edges must be square.

No. 2.

No. 2 shall work 50% sound cutting. Wane admitted not to exceed 3 inches in width and one-third the length of the piece on one edge or the equivalent on both edges.

This is to be used for Box Shook or cutting-up purposes.

GUM, DRESSED OR WORKED.

General Instructions.

1. Dressed Gum shall be inspected from the best or face side. The reverse side may contain defective dressing, but no other defects that would not go in the grade.

2. Slightly chipped grain on the face side admitted, provided it does not exceed in the aggregate 6 inches square in Firsts and Seconds 8 to 12 inches wide; 10 inches square in Firsts and Seconds 13 inches and wider; 12 inches square in No. 1 Common 6 to 12 inches wide, and 16 inches square in No. 1 Common 13 inches and wider.

3. Imperfect manufacture in dressed stock, such as torn grain, broken knots, mismatched, insufficient tongue or groove, shall be considered defects and will reduce the grade accordingly.

4. Partition, ceiling, flooring or drop siding, having less than three-sixteenths inch tongue, shall not be admitted in any grade above No. 3.

5. Wane on the reverse side not exceeding one-third the width and running not to exceed one-sixth the length of any one piece, provided the wane does not extend into the tongue, or over one-half the thickness below the groove, will be admitted.

Standard Sizes of Dressed Gum.

FINISHING. ½-inch S2S, 5/16-inch; ⅝-inch S2S, 7/16-inch; ¾-inch S2S, 9/16-inch; 1-inch S2S, 13/16-inch; 1¼-inch S2S, 1 3/32-inches; 1½ inches S2S, 1 11/32 inches; 2 inches S2S, 1¾ inches.

CASING AND BASE. Dressed to 13/16-inch thick; 3½, 4½, 5½, 6½, 7½, 8½, 9½ and 11½ inches wide.

FLOORING AND PARTITION. Dressed to 13/16-inch thick; 2¼, 3¼, 4¼ and 5¼ inches face width.

Flooring to be S2S and center matched.

CEILING. ⅜-inch dressed to 5/16-inch; ½-inch to 7/16-inch; ⅝-inch to 9/16-inch; ¾-inch to 11/16-inch; same widths as partitions.

Bevel Siding and Weatherboarding.

No. 1 GRADE. Lengths: 8 to 20 feet, admitting 15% of odd lengths.

Shall be clear one face and otherwise sound. Sound sap without limit admitted.

No. 2 GRADE. Lengths: 6 to 20 feet, admitting 15% of odd lengths.

May contain imperfections in working and unsound defects which can be removed in two cuts without waste of more than 10% of the length of any one piece.

No. 3 GRADE. Lengths: 4 to 20 feet, admitting 15% of odd lengths.

Permits all classes of defects, but must work without waste of more than one-third of the length of any one piece.

Drop Siding, Flooring and Ceiling.

No. 1 GRADE. Lengths: 8 to 20 feet, admitting 15% of odd lengths.

Will allow sound sap without limit, but is otherwise without defects.

GUM (Dressed or Worked).

No. 2 GRADE. Lengths: 6 to 20 feet, admitting 15% of odd lengths.

May contain imperfections in working and unsound defects which can be removed in two cuts without waste of more than 10% of the length of any one piece.

No. 3 GRADE. Lengths: 4 to 20 feet, admitting 15% of odd lengths.

Permits all classes of defects, but must work without waste of more than one-third of the contents of any one piece.

Partition.

No. 1 GRADE. Lengths: 8 to 20 feet, admitting 15% of odd lengths.

Will admit sound sap without limit, but shall be otherwise clear both sides.

No. 2 GRADE. Lengths: 6 to 20 feet, admitting 15% of odd lengths.

May contain imperfections in working and other defects which can be removed in two cuts without waste of more than 10% of the length of any one piece.

No. 3 GRADE. Lengths: 4 to 20 feet, admitting 15% of odd lengths.

Permits all classes of defects, but must work without waste of more than one-third of the contents of any one piece.

Finish.

No. 1 FINISH. Pieces 6 to 7 inches wide are clear; pieces 8 to 10 inches may have one standard defect; pieces 10 to 12 inches two standard defects; pieces 13 inches or over may have three standard defects or their equivalent in larger defects. (Sound sap is not to be considered a defect.)

No. 2 FINISH. Pieces are calculated to work 75% clear in not over 3 pieces. Discolored sap, unless of an unsound nature, and small pin worm holes, are not considered defects.

Mouldings.

No. 1.

Lengths: 8 feet and over, admitting 15% of odd lengths; 20% may be 8, 9 and 10 feet, with not to exceed 10% under 10 feet.

Widths, thickness and pattern to be governed by Universal Moulding Book, and to be graded as follows:

Discolored sap, if sound, shall be admitted without limit; otherwise clear, except slightly chipped grain not to exceed one-twelfth the length of any one piece.

No. 2.

Lengths: 6 feet and over, admitting 15% of odd lengths; 20% may be 6, 7 and 8 feet, with not to exceed 10% under 8 feet.

Widths, thickness and pattern to be governed by Universal Moulding Book, and to be graded as follows:

No. 2 will include all moulding that will not come up to the grade of No. 1 that will work 50% clear in pieces 4 feet and longer.

BLACK GUM.

Black Gum is to be inspected according to the Rules of Tupelo Gum.

ASH

General Instructions and the following rules are to govern the inspection:

Bright sap is no defect in any grade.

Standard grades: Firsts and Seconds, Selects, No. 1 Common, No. 2 Common, No. 3 Common, No. 4 Common.

Thicknesses: Standard.

Firsts and Seconds (Fas).

Firsts and Seconds are combined as one grade.

Lengths: 8 feet and over, admitting 15% of odd lengths; 20% may be 8, 9 and 10 feet, and not to exceed 5% under 10 feet.

Widths: 6 inches and over.

Thicknesses: Standard.

Firsts shall be 6 inches and over wide, 10 feet and over long, and will admit standard defects as follows:

6 and 7 inches wide, none.

8 inches and over wide, one.

Seconds are 6 inches and over wide, 8 feet and over long, and will admit standard defects as follows:

6 to 7 inches wide, one.

8 to 10 inches wide, two.

11 to 13 inches wide, three.

14 to 16 inches wide, four.

As widths increase, defects may increase in proportion.

Splits not to exceed one-sixth the length of the piece admitted and to be considered as one standard defect and not over 20% of the whole in either quality may be so split.

Selects.

Lengths: 6 ft. and over, admitting 15% of odd lengths, not over 30% under 12 ft. and not to exceed 5% of 6 and 7 ft.

Widths: 5 inches and over.

Thicknessess: Standard.

Bright sap is not a defect.

Inspection to be made from the good side of the piece. Pieces 6 ft. and 7 ft. must be clear one face and sound on the reverse side.

Pieces 6 inches and over wide, 8 ft. and over long, must grade not below seconds on the best face. The reverse side of pieces 8 ft. and over long, must work at least 80% sound.

This grade may also include pieces other than those described above, below the grade of seconds, that will work at least 80% clear face, as follows: 12 ft. and shorter, 2 cuttings; 13 ft. and longer, 3 cuttings.

The smallest cutting allowed must contain 144 square inches. It must not be shorter than 18 inches, nor narrower than 5 inches.

No. 1 Common.

Lengths: 4 feet and over, admitting 15% of odd lengths; 25% may be 4, 5, 6, 7 and 8 feet, and not to exceed 5% under 8 feet.

Widths: 4 inches and over.

Thicknesses: Standard.

4-6-foot lengths must be clear one face up to 8 inches wide; over 8 inches wide will admit one standard defect.

ASH.

Other widths and lengths must work 66 2/3% clear face as follows:

Widths	Lengths	No. of Pieces
4 to 11 inches	7 to 11 feet	2
4 to 11 inches	12 to 16 feet	3
4 to 11 inches	17 to 20 feet	4
12 to 15 inches	7 to 11 feet	3
12 to 15 inches	12 to 16 feet	4
12 to 15 inches	17 to 20 feet	5
16 inches and over	7 to 11 feet	4
16 inches and over	12 to 16 feet	5
16 inches and over	17 to 20 feet	6

The smallest cutting allowed must contain 144 square inches, and it must not be shorter than 18 inches nor narrower than 4 inches.

No. 2 Common.

Lengths: 4 feet and over, admitting 15% of odd lengths; 25% may be 4, 5 and 6 feet, and not to exceed 10% under 6 feet.

Widths: 3 inches and over.

Thicknesses: Standard.

Pieces 4 feet long must be clear on one face.

Pieces 5 feet and longer must work at least 50% clear face cutting.

No piece or cutting can be shorter than 18 inches nor narrower than 3 inches, and must contain 144 square inches.

No. 3 Common.

Lengths: 4 feet and over, admitting 15% of odd lengths.

Widths: 3 inches and over.

Thicknesses: Standard.

Each piece must contain at least 50% sound cutting.

No piece or cutting can be shorter than 18 inches nor narrower than 3 inches and must contain 72 square inches.

No. 4 Common.

No. 4 Common shall include all lumber not up to the grade of No. 3 Common that can be used for cheap boxing, sheathing, crating, etc. Worm holes are not to be considered defects, and unsound lumber with sufficient substance to hold nails admitted.

STRIPS.

Strips shall be measured at the narrow end, and tallied lengths separate on the half and even inches. In the event of Beveled Edges, the narrow face shall be measured.

ASH.

Clear Face Strips.

Lengths: 8 feet and over, admitting 15% of odd lengths; 20% may be 8, 9 and 10 feet, and not to exceed 5% under 10 feet.

Widths: 2½, 3, 3½, 4, 4½, 5 and 5½ inches.

Thicknesses: Standard.

Each piece must show one clear face free from all defects except bright sap.

No. 1 Common Strips.

Lengths: 4 feet and over, admitting 15% of odd lengths; 25% may be 4, 5, 6, 7 and 8 feet, and not to exceed 5% under 8 feet.

Widths: 2½, 3, 3½, 4, 4½, 5 and 5½ inches.

This grade must work 66 2/3% clear face in not more than two pieces. No piece or cutting must be considered which is less than 4 feet long and the full width of the piece.

HACKBERRY

Hackberry to be graded same as Ash and standard grades shall be Fas, No. 1 Common, No. 2 Common, No. 3 Common, No. 4 Common.

CHESTNUT

General Instructions and the following rules to govern the inspection.

Bright sap is no defect in any grade.

Worm holes that are bunched so that they will not exceed in damage the number of standard defects allowed in the piece will be admitted and to be considered as defects.

Standard Grades: Firsts and Seconds, No. 1 Common, Firsts and Seconds Wormy, No. 1 Common Wormy, Sound Wormy, No. 2 Common Wormy and No. 3 Common.

Thicknesses: Standard.

Firsts and Seconds (Fas).

Firsts and Seconds are combined as one grade.

Lengths: 8 feet and over, admitting 15% of odd lengths; 20% may be 8, 9 and 10 feet, and not to exceed 5% under 10 feet.

Widths: 6 inches and over.

Thicknesses: Standard.

Firsts shall be 6 inches and over wide, 10 feet and over long, and will admit standard defects as follows:

6 to 7 inches wide, none.

8 inches and over wide, one.

Seconds are 6 inches and over wide, 8 feet and over long, and will admit standard defects as follows:

6 to 7 inches wide, one.

8 to 10 inches wide, two.

11 to 13 inches wide, three.

14 to 16 inches wide, four.

As widths increase, defects may increase in proportion.

Splits not to exceed one-sixth the length of the piece admitted to be considered as one standard defect, and not over 20% of the whole in either quality may be so split.

No. 1 Common.

Lengths: 4 feet and over, admitting 15% of odd lengths; 25% may be 4, 5, 6, 7 and 8 feet, and not to exceed 5% under 8 feet.

Widths: 4 inches and over.

Thicknesses: Standard.

4-6-foot lengths must be clear one face up to 8 inches wide; over 8 inches wide will admit one standard defect

CHESTNUT.

Other widths and lengths must work 66 2/3% clear face as follows:

Widths	Lengths	No. of Pieces
4 to 11 inches	7 to 11 feet	2
4 to 11 inches	12 to 16 feet	3
4 to 11 inches	17 to 20 feet	4
12 to 15 inches	7 to 11 feet	3
12 to 15 inches	12 to 16 feet	4
12 to 15 inches	17 to 20 feet	5
16 inches and over	7 to 11 feet	4
16 inches and over	12 to 16 feet	5
16 inches and over	17 to 20 feet	6

The smallest cutting allowed must contain 144 square inches, and it must not be shorter than 18 inches nor narrower than 4 inches.

Firsts and Seconds (Fas) Wormy.

Lengths: 6 feet and over, admitting 15% of odd lengths; 25% may be 6, 7 and 8 feet, and not to exceed 5% under 8 feet.

Widths: 6 inches and over.

Thicknesses: Standard.

Firsts shall be 6 inches and over wide, 8 feet and over long, and will admit standard defects as follows:

6 to 7 inches wide, none.

8 inches and over wide, one.

Seconds are 6 inches and over wide, 6 feet and over long, and will admit standard defects as follows:

6 to 7 inches wide, one.

8 to 10 inches wide, two.

11 to 12 inches wide, three.

14 to 16 inches wide, four.

As widths increase, defects may increase in proportion. Splits not to exceed one-sixth the length of the piece admitted and to be considered as one standard defect, and not over 20% of the whole in either quality may be so split.

In addition to above will admit worm holes without limit.

No. 1 Common Wormy.

Lengths: 4 feet and over, admitting 15% of odd lengths; 25% may be 4, 5, 6, 7 and 8 feet, and not to exceed 5% under 8 feet.

Widths: 4 inches and over.

Thicknesses: Standard.

CHESTNUT.

Other widths and lengths must work 66 2/3% clear face as follows:

Widths	Lengths	No. of Pieces
4 to 11 inches	6 to 11 feet	2
4 to 11 inches	12 to 16 feet	3
4 to 11 inches	17 to 20 feet	4
12 to 15 inches	6 to 11 feet	3
12 to 15 inches	12 to 16 feet	4
12 to 15 inches	17 to 20 feet	5
16 inches and over	6 to 11 feet	4
16 inches and over	12 to 16 feet	5
16 inches and over	17 to 20 feet	6

The smallest cutting allowed must contain 144 square inches, and it must not be shorter than 18 inches nor narrower than 4 inches.

In addition to above will admit worm holes without limit.

Sound Wormy.

Lengths: 6 feet and over, admitting 15% of odd lengths; 25% may be 6, 7 and 8 feet, and not to exceed 5% under 8 feet.

Widths: 3 inches and over.

Thicknesses: Standard.

Will admit worm holes without limit, but must work at least 66 2/3% into sound cuttings.

No piece or cutting can be shorter than 18 inches nor narrower than 3 inches, and must contain 144 square inches.

No. 2 Common Wormy.

Lengths: 4 feet and over, admitting 15% of odd lengths; 25% may be 4, 5, 6, 7 and 8 feet, and not to exceed 5% under 8 feet.

Widths: 3 inches and over.

Thicknesses: Standard.

Will admit worm holes without limit, but must work at least 50% into sound cuttings.

No piece or cutting can be shorter than 18 inches nor narrower than 3 inches, and must contain 144 square inches.

No. 3 Common.

Lengths: 4 feet and over, admitting 15% of odd lengths.

Widths: 3 inches and over.

Thicknesses: Standard.

No. 3 Common will include all lumber that does not come up to the grade of No. 2 Common Wormy that can be used for cheap boxing, crating, sheathing, etc.

BASSWOOD

General Instructions and the following rules are to govern the inspection:

Bright sap is no defect.

Standard grades: Firsts and Seconds, No. 1 Common, No. 2 Common, No. 3 Common, No. 4 Common.

Thicknesses: Standard.

Firsts and Seconds (Fas).

Firsts and Seconds are combined as one grade.

Lengths: 8 feet and over, admitting 15% of odd lengths; 20% may be 8, 9 and 10 feet, and not to exceed 5% under 10 feet.

Widths: 6 inches and over.

Thicknesses: Standard.

Firsts shall be 6 inches and over wide, 10 feet and over long, and will admit standard defects as follows:

6 to 7 inches wide, none.

8 inches and over wide, one.

Seconds are 6 inches and over wide, 8 feet and over long, and will admit standard defects as follows:

6 to 7 inches wide, one.

8 to 10 inches wide, two.

11 to 13 inches wide, three.

14 to 16 inches wide, four.

As widths increase, defects may increase in proportion.

Splits not to exceed one-sixth the length of the piece admitted and not over 20% of the whole in either quality may be so split, and to be considered as one standard defect.

No. 1 Common.

Slightly discolored sap that will dress up sound, not necessarily bright, but not black, admitted.

Lengths: 4 feet and over, admitting 15% of odd lengths; 25% may be 4, 5, 6, 7 and 8 feet, and not to exceed 5% under 8 feet.

Widths: 4 inches and over.

Thicknesses: Standard.

4-6-foot lengths must be clear one face up to 8 inches wide; over 8 inches wide will admit one standard defect.

BASSWOOD.

Other widths and lengths must work 66 2/3% clear face as follows:

Widths	Lengths	No. of Pieces
4 to 11 inches	7 to 11 feet	2
4 to 11 inches	12 to 16 feet	3
4 to 11 inches	17 to 20 feet	4
12 to 15 inches	7 to 11 feet	3
12 to 15 inches	12 to 16 feet	4
12 to 15 inches	17 to 20 feet	5
16 inches and over	7 to 11 feet	4
16 inches and over	12 to 16 feet	5
16 inches and over	17 to 20 feet	6

The smallest cutting allowed must contain 144 square inches, and it must not be shorter than 18 inches nor narrower than 4 inches.

No. 2 Common.

Discolored sap that will dress up sound admitted without limit.

Lengths: 4 feet and over, admitting 15% of odd lengths; 25% may be 4, 5 and 6 feet, and not to exceed 10% under 6 feet.

Widths: 3 inches and over.

Thicknesses: Standard.

Pieces 4 feet long must be clear one face.

Pieces 5 feet and over must work at least 50 per cent clear face cutting.

No piece or cutting can be shorter than 18 inches nor narrower than 3 inches, and must contain 144 square inches.

No. 3 Common.

Lengths: 4 feet and over, admitting 15% of odd lengths.

Widths: 3 inches and over.

Thicknesses: Standard.

Each piece must contain at least 50% sound cutting.

No piece or cutting can be shorter than 18 inches nor narrower than 3 inches and must contain 72 square inches.

No. 4 Common.

No. 4 Common shall include all lumber not up to the grade of No. 3 Common that can be used for cheap boxing, sheathing, crating, etc. Worm holes are not to be considered defects, and unsound lumber with sufficient substance to hold nails admitted.

BUCKEYE

General Instructions and the following rules are to govern the inspection:

Bright sap is no defect.

Standard grades: Firsts and Seconds, No. 1 Common, No. 2 Common, No. 3 Common, No. 4 Common.

Thicknesses: Standard.

Firsts and Seconds (Fas).

Firsts and Seconds are combined as one grade.

Lengths: 8 feet and over, admitting 15% of odd lengths; 20% may be 8, 9 and 10 feet, and not to exceed 5% under 10 feet.

Widths: 6 inches and over.

Thicknesses: Standard.

Firsts shall be 6 inches and over wide, 10 feet and over long, and will admit standard defects as follows:

6 to 7 inches wide, none.

8 inches and over wide, one.

Seconds are 6 inches and over wide, 8 feet and over long, and will admit standard defects as follows:

6 to 7 inches wide, one.

8 to 10 inches wide, two.

11 to 13 inches wide, three.

14 to 16 inches wide, four.

As widths increase, defects may increase in proportion.

Splits not to exceed one-sixth the length of the piece admitted and to be considered as one standard defect and not over 20% of the whole in either quality may be so split.

No. 1 Common.

Slightly discolored sap that will dress up sound, not necessarily bright, but not black, admitted.

Lengths: 4 feet and over, admitting 15% of odd lengths; 25% may be 4, 5, 6, 7 and 8 feet, and not to exceed 5% under 8 feet.

Widths: 4 inches and over.

Thicknesses: Standard.

4-6-foot lengths must be clear one face up to 8 inches wide; over 8 inches wide will admit one standard defect.

BUCKEYE.

Other widths and lengths must work 66 2/3% clear face as follows:

Widths	Lengths	No. of Pieces
4 to 11 inches	7 to 11 feet	2
4 to 11 inches	12 to 16 feet	3
4 to 11 inches	17 to 20 feet	4
12 to 15 inches	7 to 11 feet	3
12 to 15 inches	12 to 16 feet	4
12 to 15 inches	17 to 20 feet	5
16 inches and over	7 to 11 feet	4
16 inches and over	12 to 16 feet	5
16 inches and over	17 to 20 feet	6

The smallest cutting allowed must contain 144 square inches, and it must not be shorter than 18 inches nor narrower than 4 inches.

No. 2 Common.

Black sap that will dress up sound admitted without limit.

Lengths: 4 feet and over, admitting 15% of odd lengths; 25% may be 4, 5 and 6 feet, and not to exceed 10% under 6 feet.

Widths: 3 inches and over.

Thicknesses: Standard.

Pieces 4 feet long must be clear one face.

Pieces 5 feet and longer must work at least 50 per cent clear face cutting.

No piece or cutting can be shorter than 18 inches nor narrower than 3 inches, and must contain 144 square inches.

No. 3 Common.

Lengths: 4 feet and over, admitting 15% of odd lengths.

Widths: 3 inches and over.

Thicknesses: Standard.

Each piece must contain at least 50% sound cutting.

No piece or cutting to contain less than 72 square inches.

No. 4 Common.

No. 4 Common shall include all lumber not up to the grade of No. 3 Common that can be used for cheap boxing, sheathing, crating, etc. Worm holes are not to be considered defects and unsound lumber with sufficient substance to hold nails admitted.

WALNUT

General Instructions and the following rules are to govern:

Standard Grades: First and Seconds, No. 1 Common, No. 2 Common, No. 3 Common, No. 4 Common.

Lengths: 4 feet and over, admitting all odd foot lengths.

Thicknesses: Standard.

Firsts and Seconds (Fas).

Firsts and Seconds are combined as one grade.

Lengths: 6 feet and over, admitting 25% 8 feet and under.

Widths: 6 inches and over.

Firsts shall be 8 feet and over long.

6 and 7-inch widths must be free of defects.

8 to 12-inch widths will admit one standard defect, and 1 inch of bright sap.

13 inches and over wide will admit two standard defects and 2 inches of bright sap.

Seconds shall be 6 feet and over long.

6 and 7-inch widths will admit one standard defect and 1 inch of bright sap.

8 and 9-inch widths will admit two standard defects and 1 inch of bright sap.

10 and 11-inch widths will admit three standard defects and 1 inch of bright sap, or two standard defects and 1½ inches of bright sap, or 2½ inches of bright sap.

12 to 14-inch widths will admit three standard defects and 1½ inches of bright sap, or two standard defects and 2 inches of bright sap, or 3 inches of bright sap.

15 inches and over will admit four standard defects and 2 inches of bright sap, or three standard defects and 2½ inches of bright sap, or 4 inches of bright sap.

Splits not exceeding one-sixth the length of the piece admitted, and considered as one standard defect. Split boards limited to 20%.

Must be graded from the best side.

The poorest side must not grade lower than No. 1 Common.

WALNUT.

No. 1 Common.

Lengths: 4 feet and over. 20% 7 feet and under admitted.

Widths: 4 inches and over.

Must work 66 2/3% clear black face as follows:

Widths	Lengths	No. of Pieces
4 to 11 inches	4 to 7 feet	2
4 to 11 inches	8 to 10 feet	3
4 to 11 inches	11 feet and over	4
12 inches and over	4 to 7 feet	3
12 inches and over	8 to 10 feet	4
12 inches and over	11 feet and over	5

The smallest cutting allowed must contain 144 square inches, and it must not be shorter than 18 inches nor narrower than 4 inches.

No. 2 Common.

Lengths: 4 feet and over.

Widths: 3 inches and over.

Admits all lumber not up to the grade of No. 1 Common that will cut 33 1/3% clear black face in pieces containing 72 or more square inches.

No. 3 Common.

Lengths: 4 feet and over.

Widths: 3 inches and over.

Each piece must contain at least 33 1/3% sound cuttings in pieces not less than 72 square inches.

No. 4 Common.

No. 4 Common shall include all lumber not up to the grade of No. 3 Common that can be used for cheap boxing, sheathing, crating, etc. Worm holes are not to be considered defects, and unsound lumber with sufficient substance to hold nails admitted.

CHERRY

General Instructions and the following rules are to govern:

Standard grades: Firsts and Seconds, No. 1 Common, No. 2 Common, No. 3 Common, No. 4 Common.

Lengths: 4 feet and over, admitting all odd lengths.

Thicknesses: Standard.

Open Gum Spots or open streaks are a defect, and two of same shall be considered equivalent to one standard defect.

Firsts and Seconds (Fas).

Firsts and Seconds are combined as one grade.

Lengths: 6 feet and over, admitting 25% 8 feet and under.

Widths: 6 inches and over.

Firsts shall be 8 feet and over long.

6 and 7-inch widths must be free of defects.

8 to 12-inch widths will admit one standard defect, and 1 inch of bright sap.

13 inches and over wide will admit two standard defects and 2 inches of bright sap.

Seconds shall be 6 feet and over long.

6 and 7-inch widths will admit one standard defect and 1 inch of bright sap.

8 and 9-inch widths will admit two standard defects and 1 inch of bright sap.

10 and 11-inch widths will admit three standard defects and 1 inch of bright sap, or two standard defects and 1½ inches of bright sap, or 2½ inches of bright sap.

12 to 14-inch widths will admit three standard defects and 1½ inches of bright sap, or two standard defects and 2 inches of bright sap, or 3 inches of bright sap.

15 inches and over will admit four standard defects and 2 inches of bright sap, or three standard defects and 2½ inches of bright sap, or 4 inches of bright sap.

Splits over 6 inches long, not exceeding one-sixth the length of the piece admitted, considered as one standard defect. Split boards limited to 20%.

Must be graded from the best side.

The poorest side must not grade lower than No. 1 Common.

CHERRY.

No. 1 Common.

Lengths: 4 feet and over. 20% 7 feet and under admitted.

Widths: 4 inches and over.

Must work 66 2/3% clear red face, as follows:

Widths	Lengths	No. of Pieces
4 to 11 inches	4 to 7 feet	2
4 to 11 inches	8 to 10 feet	3
4 to 11 inches	11 feet and over	4
12 inches and over	4 to 7 feet	3
12 inches and over	8 to 10 feet	4
12 inches and over	11 feet and over	5

No cutting to be less than 4 inches wide and 18 inches long.

No. 2 Common.

Lengths: 4 feet and over.

Widths: 3 inches and over.

Admits all lumber not up to the grade of No. 1 Common that will work 33 1/3% clear red face in pieces not less than 3 inches wide and 18 inches long.

Gum Spots or streaks no defect in this grade.

No. 3 Common.

Lengths: 4 feet and over.

Widths: 3 inches and over.

Each piece must contain at least 33 1/3% sound cutting in pieces not less than 3 inches wide and 18 inches long.

Gum Spots or streaks no defect in this grade.

No. 4 Common.

No. 4 Common shall include all lumber not up to the grade of No. 3 Common that can be used for cheap boxing, sheathing, crating, etc. Worm holes are not to be considered defects, and unsound lumber with sufficient substance to hold nails admitted.

HICKORY AND PECAN

General Instructions and the following rules are to govern the inspection:

Standard Grades: Firsts and Seconds, No. 1 Common, No. 2 Common, No. 3 Common and No. 4 Common.

Thicknesses: Standard.

Bright sap is considered no defect in any grade.

Bird Peck and Gum streak are to be considered.

Firsts and Seconds (Fas).

Firsts and Seconds are combined as one grade.

Lengths: 8 feet and over, admitting 15% of odd lengths; 25% may be 8, 9 and 10 feet, and not to exceed 10% under 10 feet.

Widths: 4 inches and over.

Thicknesses: Standard.

Firsts shall be 6 inches and over wide, 10 feet and over long, and will admit standard defects as follows:

6 to 7 inches wide, none.

8 inches and over wide, one.

Seconds are 4 inches and over wide, 8 feet and over long, and will admit standard defects as follows:

4 to 5 inches wide, none.

6 to 7 inches wide, one.

8 to 10 inches wide, two.

11 to 13 inches wide, three.

14 to 16 inches wide, four.

As widths increase, defects may increase in proportion.

Splits not exceeding one-sixth the length of the piece are to be admitted and considered as one standard defect; not over 20% of the whole may be so split.

No. 1 Common.

Lengths: 4 feet and over, admitting 15% of odd lengths; 25% may be 4, 5, 6, 7 and 8 feet, and not to exceed 10% under 8 feet.

Widths: 3 inches and over.

Thicknesses: Standard.

Pieces 3 inches wide must be clear.

6-foot lengths must be clear one face up to 8 inches wide; over 8 inches will admit one standard defect.

HICKORY AND PECAN.

Other widths and lengths must work 66 2/3% clear face as follows:

Widths	Lengths	No. of Pieces
4 to 11 inches	7 to 11 feet	2
4 to 11 inches	12 to 16 feet	3
4 to 11 inches	17 to 20 feet	4
12 to 15 inches	7 to 11 feet	3
12 to 15 inches	12 to 16 feet	4
12 to 15 inches	17 to 20 feet	5
16 inches and over	7 to 11 feet	4
16 inches and over	12 to 16 feet	5
16 inches and over	17 to 20 feet	6

The smallest cutting allowed must contain 144 square inches, and it must not be shorter than 18 inches nor narrower than 4 inches.

No. 2 Common.

Lengths: 4 feet and over, admitting 15% of odd lengths; 25% may be 4, 5 and 6 feet, and not to exceed 10% under 6 feet.

Widths: 3 inches and over.

Thicknesses: Standard.

Pieces 4 feet long must be clear one face.

Pieces 5 feet and longer must work at least 50% clear face cutting.

No piece or cutting can be shorter than 18 inches nor narrower than 3 inches, and must contain 144 square inches.

No. 3 Common.

Lengths: 4 feet and over, admitting 15% of odd lengths.

Widths: 3 inches and over.

Thicknesses: Standard.

Each piece must contain at least 50% sound cutting.

No piece or cutting can be shorter than 18 inches nor narrower than 3 inches, and must contain 72 square inches.

No. 4 Common.

No. 4 Common shall include all lumber not up to the grade of No. 3 Common that can be used for cheap boxing, sheathing, crating, etc. Worm holes are not to be considered defects, and unsound lumber with sufficient substance to hold nails admitted.

PLAIN SAWED SYCAMORE

General Instructions and the following rules are to govern the inspection:

Standard Grades: Firsts and Seconds, No. 1 Common, No. 2 Common, No. 3 Common and No. 4 Common.

Thicknesses: Standard.

Firsts and Seconds (Fas).

Firsts and Seconds are combined as one grade.

Lengths: 8 feet and over, admitting 15% of odd lengths; 20% may be 8, 9 and 10 feet, and not to exceed 5% under 10 feet.

Widths: 6 inches and over.

Thicknesses: Standard.

Firsts shall be 6 inches and over wide, 10 feet and over long, and will admit standard defects as follows:

6 and 7 inches wide, none.

8 inches and over wide, one.

Seconds are 6 inches and over wide, 8 feet and over long, and will admit standard defects as follows:

6 to 7 inches wide, one.

8 to 10 inches wide, two.

11 to 13 inches wide, three.

14 to 16 inches wide, four.

As widths increase, defects may increase in proportion.

Splits not to exceed one-sixth the length of the piece admitted and to be considered as one standard defect, and not over 20% of the whole in either quality to be so split.

Bright sap to one-third the width of the piece on the face side is no defect. The reverse side may contain sap without limit.

No. 1 Common.

Lengths: 4 feet and over, admitting15% of odd lengths; 25% may be 4, 5, 6, 7 and 8 feet, and not to exceed 5% under 8 feet.

Widths: 4 inches and over.

Thicknesses: Standard.

Bright sap is not a defect in this grade.

4-6-foot lengths must be clear one face up to 8 inches wide; over 8 inches wide will admit one standard defect.

PLAIN SAWED SYCAMORE.

Other widths and lengths must work 66 2/3% clear face as follows:

Widths	Lengths	No. of Pieces
4 to 11 inches	7 to 11 feet	2
4 to 11 inches	12 to 16 feet	3
4 to 11 inches	17 to 20 feet	4
12 to 15 inches	7 to 11 feet	3
12 to 15 inches	12 to 16 feet	4
12 to 15 inches	17 to 20 feet	5
16 inches and over	7 to 11 feet	4
16 inches and over	12 to 16 feet	5
16 inches and over	17 to 20 feet	6

The smallest cutting allowed must contain 144 square inches, and it must not be shorter than 18 inches, nor narrower than 4 inches.

No. 2 Common.

Lengths: 4 feet and over, admitting 15% of odd lengths; 25% may be 4, 5 and 6 feet, and not to exceed 10% under 6 feet.

Widths: 3 inches and over.

Thicknesses: Standard.

No. 2 Common shall include all lumber that will not come up to the grade of No. 1 Common and that will work at least 50% into sound cuttings. No piece or cutting can be shorter than 18 inches nor narrower than 3 inches, and must contain 144 square inches. Black sap not to be considered a defect in this grade.

No. 3 Common.

Lengths: 4 feet and over, admitting 15% of odd lengths.

Widths: 3 inches and over.

Thicknesses: Standard.

No. 3 Common must contain at least 25% sound cutting. No piece or cutting to be considered which is less than 3 inches wide and 2 feet long.

Black sap is not to be considered a defect in this grade.

No. 4 Common.

No. 4 Common shall include all lumber not up to the grade of No. 3 Common that can be used for cheap boxing, sheathing, crating, etc. Worm holes are not to be considered defects, and unsound lumber with sufficient substance to hold nails admitted.

QUARTER SAWED SYCAMORE

General Instructions and the following rules are to govern the inspection:

Standard Grades: Firsts and Seconds, No. 1 Common, No. 2 Common, No. 3 Common and No. 4 Common.

Thicknesses: Standard.

Firsts and Seconds (Fas).

Firsts and Seconds are combined as one grade.

Lengths: 8 feet and over, admitting 15% of odd lengths; 20% may be 8, 9 and 10 feet, and not to exceed 5% under 10 feet.

Widths: 6 inches and over.

Thicknesses: Standard.

Firsts shall be 6 inches and over wide, 10 feet and over long.

6 to 7 inches wide must be free from all defects.

8 inches and over wide will admit one standard defect.

Seconds are 6 inches and over wide, 8 feet and over long, and will admit standard defects as follows:

6 to 7 inches wide, one.

8 to 10 inches wide, two.

11 to 13 inches wide, three.

14 to 16 inches wide, four.

As widths increase, defects may increase in proportion.

One inch of bright sap is not a defect; each additional inch of sap to be considered as one standard defect.

Splits not to exceed one-sixth the length of the piece admitted and to be considered as one standard defect, and not over 20% of the whole in either quality may be so split.

No. 1 Common.

Lengths: 4 feet and over, admitting 15% of odd lengths; 25% may be 4, 5, 6, 7 and 8 feet, and not to exceed 10% under 8 feet.

Widths: 4 inches and over.

Thicknesses: Standard.

Bright sap is no defect in this grade.

4-6-foot lengths must be clear one face, up to 8 inches wide; over 8 inches wide will admit one standard defect.

QUARTER SAWED SYCAMORE.

Other widths and lengths must work 66 2/3% clear face as follows:

Widths	Lengths	No. of Pieces
4 to 11 inches	7 to 11 feet	2
4 to 11 inches	12 to 16 feet	3
4 to 11 inches	17 to 20 feet	4
12 to 15 inches	7 to 11 feet	3
12 to 15 inches	12 to 16 feet	4
12 to 15 inches	17 to 20 feet	5
16 inches and over	7 to 11 feet	4
16 inches and over	12 to 16 feet	5
16 inches and over	17 to 20 feet	6

The smallest cutting allowed must contain 144 square inches, and it must not be shorter than 18 inches nor narrower than 4 inches.

No. 2 Common.

Lengths: 4 feet and over, admitting 15% of odd lengths; 25% may be 4, 5 and 6 feet, and not to exceed 10% under 6 feet.

Widths: 3 inches and over.

Thicknesses: Standard.

Pieces 4 feet long must be clear.

Pieces 5 feet and longer must work at least 50% clear face cutting.

No piece or cutting can be shorter than 18 inches nor narrower than 3 inches, and must contain 144 square inches.

No. 3 Common.

Lengths: 4 feet and over, admitting 15% of odd lengths.

Widths: 3 inches and over.

Thicknesses: Standard.

Each piece must contain at least 50% sound cutting.

No piece or cutting can be shorter than 18 inches nor narrower than 3 inches and must contain 72 square inches.

No. 4 Common.

No. 4 Common shall include all lumber not up to the grade of No. 3 Common that can be used for cheap boxing, sheathing, crating, etc. Worm holes are not to be considered defects and unsound lumber with sufficient substance to hold nails admitted.

BUTTERNUT

General Instructions and the following rules are to govern the inspection:

Standard Grades: Firsts and Seconds, No. 1 Common, No. 2 Common, No. 3 Common and No. 4 Common.

Thicknesses: Standard.

Firsts and Seconds (Fas).

Firsts and Seconds are combined as one grade.

Lengths: 8 feet and over, admitting 15% of odd lengths; 20% may be 8, 9 and 10 feet, and not to exceed 5% under 10 feet.

Widths: 6 inches and over.

Thicknesses: Standard.

Firsts shall be 6 inches and over wide, 10 feet and over long, and will admit standard defects as follows:

6 to 7 inches wide, none.

8 inches and over wide, one.

Seconds are 6 inches and over wide, 8 feet and over long, and will admit standard defects as follows:

6 to 7 inches wide, one.

8 to 10 inches wide, two.

11 to 13 inches wide, three.

14 to 16 inches wide, four.

As widths increase, defects may increase in proportion.

Splits not to exceed one-sixth the length of the piece admitted and to be considered as one standard defect, and not over 20% of the whole in either quality may be so split.

Bright sap to one-third the width of the piece on the face side is no defect. The reverse side may contain sap without limit.

No. 1 Common.

Lengths: 4 feet and over, admitting 15% of odd lengths; 25% may be 4, 5, 6, 7 and 8 feet, and not to exceed 5% under 8 feet.

Widths: 4 inches and over.

Thicknesses: Standard.

Bright sap is not a defect in this grade.

4-6-foot lengths must be clear one face, up to 8 inches wide; over 8 inches wide will admit one standard defect.

BUTTERNUT.

Other widths and lengths must work 66 2/3% clear face as follows:

Widths	Lengths	No. of Pieces
4 to 11 inches	7 to 11 feet	2
4 to 11 inches	12 to 16 feet	3
4 to 11 inches	17 to 20 feet	4
12 to 15 inches	7 to 11 feet	3
12 to 15 inches	12 to 16 feet	4
12 to 15 inches	17 to 20 feet	5
16 inches and over	7 to 11 feet	4
16 inches and over	12 to 16 feet	5
16 inches and over	17 to 20 feet	6

The smallest cutting allowed must contain 144 square inches, and it must not be shorter than 18 inches nor narrower than 4 inches.

No. 2 Common.

Lengths: 4 feet and over, admitting 15% of odd lengths; 25% may be 4, 5 and 6 feet, and not to exceed 10% under 6 feet.

Widths: 3 inches and over.

Thicknesses: Standard.

Pieces 4 feet long must be clear one face.

Pieces 5 feet and longer must work at least 50% clear face cutting.

No piece or cutting can be shorter than 18 inches nor narrower than 3 inches, and must contain 144 square inches.

No. 3 Common.

Lengths: 4 feet and over, admitting 15% of odd lengths.

Thicknesses: Standard.

Each piece must work at least 50% sound cutting.

No piece or cutting can be shorter than 18 inches nor narrower than 3 inches, and must contain 72 square inches.

Sound discolored sap is no defect.

No. 4 Common.

No. 4 Common shall include all lumber not up to the grade of No. 3 Common that can be used for cheap boxing, sheathing, crating, etc. Worm holes are not to be considered defects and unsound lumber with sufficient substance to hold nails admitted.

MAPLE

General Instructions and the following rules are to govern the inspection:

Bright sap is considered no defect in any grade.

Standard Grades: Firsts and Seconds, Step Plank, No. 1 Common, No. 2 Common, No. 3 Common, No. 4 Common.

Thicknesses: Standard.

Firsts and Seconds (Fas).

Firsts and Seconds are combined as one grade.

Lengths: 8 feet and over, admitting 15% of odd lengths; 25% may be 8, 9 and 10 feet, and not to exceed 10% under 10 feet.

Widths: 6 inches and over wide.

Thicknesses: Standard.

Firsts shall be 6 inches and over wide, 10 feet and over long, and will admit standard defects as follows:

6 to 7 inches wide, none.

8 inches and over wide, one.

Seconds are 6 inches and over wide, 8 feet and over long, and will admit standard defects as follows:

6 inches wide, one.

7 to 8 inches wide, two.

9 to 12 inches wide, three.

13 to 15 inches wide, four.

As widths increase, defects may increase in proportion.

Splits not to exceed one-sixth the length of the piece admitted and to be considered as one standard defect, and not over 20% of the whole in either quality may be so split.

STEP PLANK.

Grades: Firsts and Seconds and No. 1 Common.

Lengths: 4 feet and over, admitting 15% of odd lengths.

Widths: 10 to 15 inches.

Thicknesses: 1, 1¼, 1½ and 2 inches.

Firsts and Seconds (Fas). Step Plank.

Firsts and Seconds are combined as one grade, and must show one face and one edge practically free from all defects. The other side and other edge may contain sound defects

that will not materially weaken the strength of the piece.

10 feet and over long may have one split not exceeding 12 inches in length.

No. 1 Common Step Plank.

No. 1 Common will include all lumber not up to the grade of Firsts and Seconds, that can be used for Step Plank without waste of more than one-third of the piece.

No piece or cutting to be less than 4 feet long by the full width of the piece.

No. 1 Common.

Lengths: 4 feet and over, admitting 15% of odd lengths; 30% may be 4, 5, 6, 7 and 8 feet, and not to exceed 10% under 8 feet.

Widths: 3 inches and over.

Thicknesses: Standard.

4-6-foot pieces will admit standard defects as follows:

3 and 4 inches wide, none.

5 to 9 inches wide, one.

10 inches and over, two.

Pieces 3 inches wide, 7 feet and over long, to be clear one face.

Other widths and lengths must work 66 2/3% clear face as follows:

Widths	Lengths	No. of Pieces
4 to 11 inches	7 to 11 feet	2
4 to 11 inches	12 to 16 feet	3
4 to 11 inches	17 to 20 feet	4
12 to 15 inches	7 to 11 feet	3
12 to 15 inches	12 to 16 feet	4
12 to 15 inches	17 to 20 feet	5
16 inches and over	7 to 11 feet	4
16 inches and over	12 to 16 feet	5
16 inches and over	17 to 20 feet	6

No piece or cutting to be considered which is less than 3 inches wide or 2 feet long.

Slightly discolored sap is no defect.

No. 2 Common.

Lengths: 4 feet and over, admitting 15% of odd lengths; 25% may be 4, 5 and 6 feet, and not to exceed 10% under 6 feet.

Widths: 3 inches and over.

Thicknesses: Standard.

No. 2 Common shall include all lumber that will not come up to the grade of No. 1 Common and that will work at least 50% into sound cuttings. No piece or cutting can be shorter than 18 inches nor narrower than 3 inches, and must contain 144 square inches. Black sap not to be considered a defect in this grade.

MAPLE.

No. 3 Common.

Lengths: 4 feet and over, admitting 15% of odd lengths.
Widths: 3 inches and over.
Thicknesses: Standard.
No. 3 Common must contain at least 25% sound cutting. No piece or cutting to be considered which is less than 3 inches wide and 2 feet long.
Black sap is not to be considered a defect in this grade.

No. 4 Common.

No. 4 Common shall include all lumber not up to the grade of No. 3 Common that can be used for cheap boxing, sheathing, crating, etc. Worm holes are not to be considered defects, and unsound lumber with sufficient substance to hold nails admitted.

STRIPS.

Strips shall be measured at the marrowest end and tallied lengths separate on the half and even inches. In the event of beveled edges the narrow face shall be measured.

Clear Face Strips

Lengths: 8 feet and over, admitting 15% of odd lengths; 20% may be 8, 9 and 10 feet, and not to exceed 5% under 10 feet.
Widths: 2½, 3, 3½, 4, 4½, 5 and 5½ inches.
Thicknesses: ⅝ to 2 inches.
Each piece must show one face and two edges clear.

No. 1 Common Strips.

Lengths: 4 feet and over, admitting 10% of odd lengths; 25% may be 4, 5, 6, 7 and 8 feet, and not to exceed 5% under 8 feet.
Widths: 2½, 3, 3½, 4, 4½, 5 and 5½ inches.
Thicknesses: ⅝ to 2 inches.
Bright sap is considered no defect.
Each piece must work 66 2/3% clear face in not more than two pieces. No piece or cutting to be considered which is less than 4 feet long by the full width of the piece.

No. 2 Common Strips.

Lengths: 4 feet and over, admitting 15% of odd lengths; 25% may be 4, 5 and 6 feet, and not to exceed 10% under 6 feet.
Widths: 2½, 3, 3½, 4, 4½, 5 and 5½ inches.
Thicknesses: ⅝ to 2 inches.
Each piece must work at least 50% clear face.
No piece or cutting to be less than 2 feet in length by the full width of the piece.

WHITE MAPLE

Grades: No. 1 and No. 2.

No. 1 must grade the same as Firsts and Seconds, except that both sides and both edges must be all White.

No. 2 must grade the same as Firsts and Seconds, except that one side and two edges must be all White.

BEECH

General Instructions and the following rules are to govern the inspection:

Bright sap is considered no defect in any grade.

Standard Grades: Firsts and Seconds, No. 1 Common, No. 2 Common, No. 3 Common, No. 4 Common.

Thicknesses: Standard.

Firsts and Seconds (Fas).

Firsts and Seconds are combined as one grade.

Lengths: 8 feet and over, admitting 15% of odd lengths; 25% may be 8, 9 and 10 feet, and not to exceed 10% under 10 feet.

Widths: 6 inches and over wide.

Thicknesses: Standard.

Firsts shall be 6 inches and over wide, 10 feet and over long, and will admit standard defects as follows:

6 to 7 inches wide, none.

8 inches and over wide, one.

Seconds shall be 6 inches and over wide, 8 feet and over long, and will admit standard defects as follows:

6 inches wide, one.

7 to 8 inches wide, two.

9 to 12 inches wide, three.

13 to 15 inches wide, four.

As widths increase, defects may increase in proportion.

Splits not to exceed one-sixth the length of the piece admitted and to be considered as one standard defect and not over 20% of the whole in either quality may be so split.

No. 1 Common.

Lengths: 4 feet and over, admitting 15% of odd lengths; 30% may be 4, 5, 6, 7 and 8 feet, and not to exceed 10% under 8 feet.

Widths: 3 inches and over.

Thicknesses: Standard.

4-6-foot pieces will admit standard defects as follows:

3 and 4 inches wide, none.

5 to 9 inches wide, one.

10 inches and over, two.

Pieces 3 inches wide, 7 feet and over long, to be clear one face.

BEECH.

Other widths and lengths must work 66 2/3% clear face as follows:

Widths	Lengths	No. of Pieces
4 to 11 inches	7 to 11 feet	2
4 to 11 inches	12 to 16 feet	3
4 to 11 inches	17 to 20 feet	4
12 to 15 inches	7 to 11 feet	3
12 to 15 inches	12 to 16 feet	4
12 to 15 inches	17 to 20 feet	5
16 inches and over	7 to 11 feet	4
16 inches and over	12 to 16 feet	5
16 inches and over	17 to 20 feet	6

No piece or cutting to be considered which is less than 3 inches wide or 2 feet long.

Slightly discolored sap is no defect.

No. 2 Common.

Lengths: 4 feet and over, admitting 15% of odd lengths; 25% may be 4, 5 and 6 feet, and not to exceed 10% under 6 feet.

Widths: 3 inches and over.

Thicknesses: Standard.

Pieces 4 feet long must be clear one face.

Pieces 5 feet and longer must work at least 50% clear face cutting.

No piece or cutting to be less than 3 inches wide or 2 feet long.

No. 3 Common.

Lengths: 4 feet and over, admitting 15% of odd lengths.

Widths: 3 inches and over.

Thicknesses: Standard.

Each piece must contain at least 50% sound cutting.

No piece or cutting can be shorter than 18 inches nor narrower than 3 inches and must contain 72 square inches.

No. 4 Common.

No. 4 Common shall include all lumber not up to the grade of No. 3 Common that can be used for cheap boxing, sheathing, crating, etc. Worm holes are not to be considered defects, and unsound lumber with sufficient substance to hold nails admitted.

Strips.

Strips shall be measured at the narrowest end, and tallied lengths separate on the even and half inches. In the event of Beveled Edges, the narrow face shall be measured.

BEECH.

Clear Face Strips.

Lengths: 8 feet and over, admitting 15% of odd lengths; 20% may be 8, 9 and 10 feet, and not to exceed 5% under 10 feet.

Widths: 2½, 3, 3½, 4, 4½, 5 and 5½ inches.

Thicknesses: ⅜ to 2 inches.

Each piece must show one face and two edges clear.

No. 1 Common Strips.

Lengths: 4 feet and over, admitting 15% of odd lengths; 25% may be 4, 5, 6, 7 and 8 feet, and not to exceed 5% under 8 feet.

Widths: 2½, 3, 3½, 4, 4½, 5 and 5½ inches.

Thicknesses: ⅜ to 2 inches.

Bright sap is considered no defect in this grade.

Each piece must work 66 2/3% clear face in not more than two pieces. No piece or cutting to be considered which is less than 4 feet long by the full width of the piece.

No. 2 Common Strips.

Lengths: 4 feet and over, admitting 15% of odd lengths; 25% may be 4, 5 and 6 feet, and not to exceed 10% under 6 feet.

Widths: 2½, 3, 3½, 4, 4½, 5 and 5½ inches.

Thicknesses: ⅜ to 2 inches.

Each piece must work at least 50% clear face.

No piece or cutting to be less than 2 feet in length by the full width of the piece.

WHITE BEECH

Grades: No. 1 and No. 2.

No. 1 must grade the same as Firsts and Seconds, except that both sides and edges must be all White.

No. 2 must grade the same as Firsts and Seconds, except that one side and two edges must be all White.

WHITE BIRCH

General Instructions and the following rules are to govern the inspection:

Bright sap is considered no defect in any grade.

Standard Grades: Firsts and Seconds, No. 1 Common, No. 2 Common, No. 3 Common, No. 4 Common.

Thicknesses: Standard.

Firsts and Seconds (Fas).

Firsts and Seconds are combined as one grade.

Lengths: 8 feet and over, admitting 15% of odd lengths; 25% may be 8, 9 and 10 feet, and not to exceed 10% under 10 feet.

Widths: 6 inches and over.

Thicknesses: Standard.

Firsts shall be 6 inches and over wide, 10 feet and over long, and will admit standard defects as follows:

6 to 7 inches wide, none.

8 inches and over wide, one.

Seconds shall be 6 inches and over wide, 8 feet and over long, and will admit standard defects as follows:

6 inches wide, one.

7 to 8 inches wide, two.

9 to 12 inches wide, three.

13 to 15 inches wide, four.

As widths increase, defects may increase in proportion.

Splits not to exceed one-sixth the length of the piece admitted and to be considered as one standard defect, and not over 20% of the whole in either quality may be so split.

No. 1 Common.

Lengths: 4 feet and over, admitting 15% of odd lengths; 30% may be 4, 5, 6, 7 and 8 feet, and not to exceed 10% under 8 feet.

Widths: 3 inches and over.

Thicknesses: Standard.

4-6-foot pieces will admit standard defects as follows:

3 and 4 inches wide, none.

5 to 9 inches wide, one.

10 inches and over wide, two.

3 inches wide, 7 feet and over long, to be clear one face.

WHITE BIRCH.

Other widths and lengths must work 66 2/3% clear face as follows:

Widths	Lengths	No. of Pieces
4 to 11 inches	7 to 11 feet	2
4 to 11 inches	12 to 16 feet	3
4 to 11 inches	17 to 20 feet	4
12 to 15 inches	7 to 11 feet	3
12 to 15 inches	12 to 16 feet	4
12 to 15 inches	17 to 20 feet	5
16 inches and over	7 to 11 feet	4
16 inches and over	12 to 16 feet	5
16 inches and over	17 to 20 feet	6

No piece or cutting to be considered which is less than 3 inches wide or 2 feet long.

Slightly discolored sap is no defect.

No. 2 Common.

Lengths: 4 feet and over, admitting 15% of odd lengths; 25% may be 4, 5 and 6 feet, and not to exceed 10% under 6 feet.

Widths: 3 inches and over.

Thicknesses: Standard.

Pieces 4 feet long must be clear.

Pieces 5 feet and longer must work at least 50% clear face cutting.

No piece or cutting to be less than 3 inches wide or 2 feet long.

No. 3 Common.

Lengths: 4 feet and over, admitting 15% of odd lengths.

Widths: 3 inches and over.

Thicknesses: Standard.

Each piece must contain at least 50% sound cutting.

No piece or cutting can be shorter than 18 inches nor narrower than 3 inches and must contain 72 square inches.

No. 4 Common.

No. 4 Common shall include all lumber not up to the grade of No. 3 Common that can be used for cheap boxing, sheathing, crating, etc. Worm holes are not to be considered defects, and unsound lumber with sufficient substance to hold nails admitted.

RED BIRCH

Red Birch must be graded the same as White Birch, except as follows:

Firsts and Seconds to be 5 inches and over in width.

Pieces 5 inches wide must show one face all red.

Pieces 6 inches and over wide must show at least 75% red on one face.

Lengths: 4 feet and over.

ELM

General Instructions and the following rules are to govern the inspection:

Bright sap is considered no defect in any grade.

Standard Grades: Firsts and Seconds, No. 1 Common, No. 2 Common, No. 3 Common, No. 4 Common.

Thicknesses: Standard.

Firsts and Seconds (Fas).

Firsts and Seconds are combined as one grade.

Lengths: 8 feet and over, admitting 15% of odd lengths; 20% may be 8, 9 and 10 feet, and not to exceed 5% under 10 feet.

Widths: 6 inches and over.

Thicknesses: Standard.

Firsts shall be 6 inches and over wide, 10 feet and over long, and will admit standard defects as follows:

6 to 7 inches wide, none.

8 inches and over wide, one.

Seconds are 6 inches and over wide, 8 feet and over long, and will admit standard defects as follows:

6 to 7 inches wide, one.

8 to 10 inches wide, two.

11 to 13 inches wide, three.

14 to 16 inches wide, four.

As widths increase, defects may increase in proportion.

Splits not to exceed one-sixth the length of the piece admitted and to be considered as one standard defect and not over 20% of the whole in either quality may be so split.

No. 1 Common.

Lengths: 4 feet and over, admitting 15% of odd lengths; 25% may be 4, 5, 6, 7 and 8 feet, and not to exceed 5% under 8 feet.

Widths: 4 inches and over.

Thicknesses: Standard.

4-6-foot lengths must be clear one face up to 8 inches wide; over 8 inches wide will admit one standard defect.

ELM.

Other widths and lengths must work 66 2/3% clear face as follows:

Widths	Lengths	No. of Pieces
4 to 11 inches	7 to 11 feet	2
4 to 11 inches	12 to 16 feet	3
4 to 11 inches	17 to 20 feet	4
12 to 15 inches	7 to 11 feet	3
12 to 15 inches	12 to 16 feet	4
12 to 15 inches	17 to 20 feet	5
16 inches and over	7 to 11 feet	4
16 inches and over	12 to 16 feet	5
16 inches and over	17 to 20 feet	6

The smallest cutting allowed must contain 144 square inches, and it must not be shorter than 18 inches nor narrower than 4 inches.

No. 2 Common.

Lengths: 4 feet and over, admitting 15% of odd lengths; 25% may be 4, 5 and 6 feet, and not to exceed 10% under 6 feet.

Widths: 3 inches and over.

Thicknesses: Standard.

No. 2 Common shall include all lumber that will not come up to the grade of No. 1 Common and that will work at least 50% into sound cuttings. No piece or cutting can be shorter than 18 inches nor narrower than 3 inches, and must contain 144 square inches. Black sap not to be considered a defect in this grade.

No. 3 Common.

Lengths: 4 feet and over, admitting 15% of odd lengths.

Widths: 3 inches and over.

Thicknesses: Standard.

No. 3 Common must contain at least 25% sound cutting. No piece or cutting to be considered which is less than 3 inches wide and 2 feet long.

Black sap is not to be considered a defect in this grade.

No. 4 Common.

No. 4 Common shall include all lumber not up to the grade of No. 3 Common that can be used for cheap boxing, sheathing, crating, etc. Worm holes are not to be considered defects, and unsound lumber with sufficient substance to hold nails admitted.

VEHICLE AND WAGON STOCK

HICKORY VEHICLE WHEEL STOCK.

DEFINITION OF TERMS IN RULES FOR GRADING RIMS.

Very Dense Growth is a growth in which the non-porous part of the annual ring covers three-quarters of the area of the annual ring, and the remaining one-quarter contains a small number of pores.

A Dense Growth is one in which the non-porous portion of the annual ring occupies at least two-thirds the annual rings, and is slightly more porous than the very dense growth and accordingly that timber which contains a less per cent. of non-porous growth and a larger per cent. of porous growth, is representative of a lower grade of timber.

Blemishes.

A blemish is that which, while marring the appearance of the timber, does not affect the strength of the timber.

(a) **Stains.** A stain is a discoloration caused by improper care or handling, by improper piling, and by being left in the weather or on the ground during the warm or wet seasons.

(b) **Iron Streaks.** An iron streak is supposed to be caused by the infiltration of foreign coloring matter through bird-pecks, and when it shows but slightly, apparently does not affect the mechanical qualities of the timber.

Bird Pecks.

A bird peck is a slight defect caused by the bird pecking a hole in and through the bark of a tree into which there settles foreign substances that discolor the timber, and when showing slightly, apparently does not affect the quality of the timber.

Bastard Rim.

A bastard rim is one in which the growth of annual rings do not run parallel to the tread of the wheel.

Cross Grain.

A cross grain piece of timber is one in which the growth or grain of the timber does not run parallel to the center line of the piece.

HICKORY VEHICLE WHEEL STOCK.

Sound Knot.

A sound knot is one in which the wood is as solid as the wood surrounding the knot.

Short Curve or Dip in the Grain or Growth.

A short curve or dip in the grain or growth is a curvature or deflection caused by a knot.

Snarl.

A snarl is a twisted grain or growth in the wood.

Grub Holes.

A grub hole is a hole about one-quarter inch in diameter caused by grub worm boring a hole, usually lengthwise to the growth of the timber.

Powder Post.

A powder post piece of hickory timber is caused by a very small worm that continues to work in timber after it has been cut, seasoned and even manufactured into the finished vehicle. While his work does not frequently appear on the outside, the inside may be entirely reduced to powder—hence the term "powder post."

Worm Holes.

A worm hole is a clean, open hole about one-sixteenth inch in diameter, and is easily visible, caused by a bug usually working in partly seasoned timber.

Sun Check

A sun check is a season check caused in seasoning and usually takes place in the best quality of timber. In some instances these checks are so very small that they do not impair the use or strength of the timber, and should be used at least in the lowest grade.

RIM INSPECTION

"A" GRADE

"A" Grade is the first and highest grade. In rim-strips of sizes 1½-inch square and smaller, the timber must be all white, of very dense growth, straight grain and free from streaks, stains and all defects, in sizes larger than 1½-inch the timber may be either all white, or part red and part white mixed, of very dense growth, straight grain and free from streaks, stains and all defects.

HICKORY VEHICLE WHEEL STOCK.

The red timber in these large sizes must not exceed one-half the size of the stick.

"B" GRADE.

"B" Grade is the second grade and must be practically straight grain of dense growth. Of all white and of red and part white and part red timber. The red and part red and part white must be fully equal to or better in quality than the white in this grade.

All rim strips in this grade must be free from all defects.

"C" GRADE.

"C" Grade is the third grade and must be medium quality of either white, red or red and white mixed timber. This grade will admit of timber of good quality not admitted in the "A" and "B" grades on account of cross grain, and all slight blemishes such as iron streaks and stains, but that are equal in strength to the clear strips of this grade.

Cross Grain. The grain shall not run in the length of the strip at any place at a greater angle than one inch in eighteen.

Short curves or dips in grain not to be included in this grade.

"D" GRADE.

"D" Grade is the fourth grade. The timber in this grade although clear and straight grain, of white or red, or white and red mixed, is of a weight and quality not admitted in higher grades. Also strips of high quality of timber equal in strength with the straight grain strips in this grade, but with blemishes such as iron streaks and stains, and defects such as knots and bird pecks that are sound, also cross grain, provided the grain shall not run in the length of the strip at any place at a greater angle than one inch in twelve.

Short curves or dips in the grain with a length of less than four inches and more than $\frac{3}{8}$-inch in depth will not be admitted in this grade.

Curves running longer than 4 inches and dips deeper than $\frac{3}{8}$" would be considered cross grain.

HICKORY VEHICLE WHEEL STOCK.

"E" GRADE.

"E" Grade is the fifth and lowest grade, consisting of strips that can be used, but such as are not admitted in the higher grades on account of quality of timber and defects. Strips with slight season checks should be used in wheels of this grade.

Strips with defects such as powder post worm eaten timber, open defects such as grub holes, checks, splits, bird pecks, snarls and otherwise unsound, and very brash timber such as has practically no fibre and strength will not be admitted to this grade.

WAGON STOCK

STANDARD DIMENSIONS.

The following dimensions given are the sizes adopted by this Association for rough materials in the green state (unless otherwise specified) and are those in common demand by our members.

The star (*) prefixing any size indicates that that size is more in demand than the unmarked sizes.

Axles—Hickory.

(6 feet long.)

2¾x3¾	3¾x4¾	*4½x5½
*3 x4	*4 x5	*5 x6
*3¼x4¼	4 x5½	5½x6½
*3½x4½	4¼x5¼	6 x7

GRADING AND INSPECTION RULES.

No. 1 or Wagonmakers' Grade.

Adopted by the National Wagon Manufacturers' Association.

GRADE.—Live, tough black or shell bark hickory, cut 6 feet in length, to include all the clear and perfect stock.

Defects as follows admissible:

STAIN.—Penetrating not more than 1/16-inch and which has not developed into a rotting condition.

KNOTS.—Four sound pin knots not exceeding ¼-inch in diameter, or two sound knots ¾-inch in diameter near the center line longitudinally on top or side and not over 12 inches of center or more than 6 inches of ends. Knots (except pin knots) not to be closer than 12 inches apart.

SPLITS.—On either end, extending not more than 6 inches in axle or 3 inches on both ends.

SEASON CHECKS.—Not more than ½-inch deep and not more than 12 inches long.

HEARTS OR HEART RINGS.—None.

SHAKES.—That will plane out with ⅛-inch cut.

WORM HOLES AND GRUB HOLES.—Not more than two pin worm holes not nearer than 6 inches to each other.

WAGON STOCK.

Not more than two grub holes that will penetrate more than 6 inches at either end of the piece.

BIRD PECKS.—Bird pecks allowed if sound, or if unsound, part is not to exceed ½-inch in diameter and not over ¼-inch in depth.

WANE.—Axles with wane will be measured excluding the wane.

SAP.—Bright sap considered no defect.

GRAIN.—Grain can cross 3 inches in entire length of axle.

DEFECTS REMOVABLE.—If defects not admitted can be cut out so as to reduce axle to a smaller size used and ordered by the buyer, it shall be so inspected.

Hewn axles shall be measured to square to the size they are ordered.

Defects at end of axles that will admit of piece working 5 feet 6 inches long will be admitted.

MAPLE AXLES.

(Sizes same as Hickory.)

No. 1 or Wagonmakers' Grade.

(These rules have not been adopted either by the wagon manufacturers or mills, but are suggested as being fair and equitable to both.)

To be cut from live, tough, hard maple (no bird's-eye or curly maple admitted), cut 6-foot and 12-foot lengths to include all the clear and perfect stock. Defects as follows admissible:

STAIN.—Penetrating not more than 1/16-inch and which has not developed into a rotting condition.

KNOTS.—Four sound pin knots not exceeding ¼-inch in diameter, or two sound knots ¾-inch in diameter near the center line longitudinally on top or side and not over 12 inches of center or more than 6 inches of ends. Knots (except pin knots) not to be closer than 12 inches apart.

SPLITS.—Splits on either end, extending not more than 6 inches in the axle or 3 inches on both ends.

SEASON CHECKS.—Not more than ½-inch deep and not more than 12 inches long.

HEARTS OR HEART RINGS.—None.

WAGON STOCK.

SHAKES.—That will plane out with ⅛-inch cut.

WORM HOLES AND GRUB HOLES.—Not more than two pin worm holes not nearer than 6 inches to each other. Not more than two grub holes that will penetrate more than 6 inches at either end of the piece.

BIRD PECKS.—Bird pecks allowed if sound, or if unsound, part is not to exceed ½-inch in diameter and not over ¼-inch in depth.

WANE.—Axles with wane will be measured excluding the wane.

SAP.—Bright sap considered no defect.

GRAIN.—Grain can cross 3 inches in entire length of axle.

CURLS.—None. 12-foot lengths to be inspected as two 6-foot lengths.

DEFECTS REMOVABLE.—If defects not admitted can be cut out so as to reduce axle to smaller size used and ordered by the buyer, it shall be so inspected.

BOLSTERS—Hickory or Oak.

(Length 4′ 1″ and 4′ 6″ or multiples.)

3x4	3¼x4¼	3¾x5½
3x4½	3¼x5	4 x5
3x5	3½x4½	4 x6
3x7	3¾x4¾	

RULES.

GRADE.—To be cut from good, tough, straight-grained oak or hickory (when oak is specified it will be understood as being White or Red Oak) suitable for wagon material. To be clear and perfect stock, excepting the following defects, which will be admissible:

STAIN.—Penetrating not more than 1/16-inch and which shows no signs of rot.

KNOTS.—One sound knot not over ½-inch in diameter, not more than 12 inches from the center of the piece, or 3 sound pin knots not exceeding ¼-inch in diameter located in same manner.

SPLITS.—None.

SEASON CHECKS.—Not more than ½-inch deep nor more than 12 inches long.

HEART RINGS.—None.

SHAKES.—If they can be planed out with ⅛-inch cut.

WAGON STOCK.

WORM HOLES.—Not more than 6 pin worm holes in a Bolster, these holes not to be in clusters of more than 3 holes, 6 inches apart.

BIRD PECKS.—Allowed if sound.

WANE.—Will be measured excluding the wane.

SAP.—Bright sap accepted.

GRAIN.—Grain can cross 2 inches in length of Bolster as maximum.

DEFECTS REMOVABLE.—If defects not admitted can be cut out so as to reduce Bolster to a smaller size used and ordered by the buyer, it shall be so inspected.

SAND BOARDS—Hickory or Oak.

(Length 4′ 1″ and 4′ 6″ or multiples.)

2¾x3½	*3 x4	3½x4½
3 x3½	3¼x3¾	*4 x5
	*3½x4	

RULES.

(Same as Bolsters.)

REACHES—Hickory or Oak.

*2 x4	8′ and 10′ long
2 x4½	8′ and 10′ long
2¼x4½	10′, 12′ and 14′ long
*2½x4½	10′, 12′ and 14′ long
2½x5	10′, 12′ and 14′ long

RULES.

GRADE.—To be cut from good, tough, straight-grained Oak or Hickory (when Oak is specified it will be understood as being White or Red Oak), suitable for wagon material. To be clear and perfect stock, free from KNOTS, SPLITS, HEARTS, GRUB HOLES, HEART RINGS, SHAKES, BIRD PECKS or WANE. Bright Sap accepted. The following defects will be admitted:

STAIN.—Penetrating not more than 1/16-inch and which shows no signs of rot.

SEASON CHECKS.—Not over ¼-inch deep or 12 inches long.

WORM HOLES.—Not more than 6 pin worm holes in a Reach, these holes not to be in clusters of more than 3 holes, 6 inches apart.

WAGON STOCK.

POLES—Ash or Oak.

(For Drop Poles.)

*2½x4 x4 x4 —12′
2½x4½x4½x4½—12′

(For Stiff Poles.)

2½x2½x2½x5 —12′
2¾x2¾x2¾x5 —12′
3 x3 x3 x5 —12′
3¼x3¼x3¼x5 —12′

RULES.

GRADE.—To be cut from good, tough, straight-grained oak or ash (when oak is specified, it will be understood as being White or Red Oak), suitable for wagon material. To be clear and perfect stock, free from KNOTS, SPLITS, HEARTS, GRUB HOLES, HEART RINGS, SHAKES or BIRD PECKS. Bright Sap accepted. The following defects will be admitted:

STAIN.—Penetrating not more than 1/16-inch and which shows no signs of rot.

SEASON CHECKS.—Not over ¼-inch deep or 12 inches long.

WORM HOLES.—Not more than 6 pin worm holes in a Pole, these holes not to be in clusters of more than 3 holes, 6 inches apart.

EVENERS—Hickory.

2x4	4′ 2″ long	2¼x4½	4′ 6″ long
2x4½	4′ 2″ long	2½x5	4′ 6″ long

RULES.

GRADE.—To be cut from good, tough, straight-grained Hickory suitable for wagon material. To be clear and perfect stock, free from KNOTS, SPLITS, HEARTS, GRUB HOLES, HEART RINGS, SHAKES, WORM HOLES or WANE. The following defects are admissible:

STAIN.—Penetrating not more than 1/16-inch and which shows no signs of rot.

SEASON CHECKS.—Not over ¼-inch deep or 12 inches long.

WORM HOLES.—None.

BRIGHT SAP.—No objection.

BIRD PECKS.—Sound bird pecks admitted.

WAGON STOCK

Turned Singletrees

Oval Diameter

At Center	At Ends	Lengths
Light 2 ″x2 ½″	1 ½″x1 ⅝″	34″ and 36″ long
Medium 2 ¼″x2 ¾″	1 ⅝″x1 ⅞″	34″ and 36″ long
Heavy 2 ½″x3 ″	1 ¾″x2 ″	36″ long

TURNED NECK YOKES.

Diameters.

At Center	At Ends	Lengths
Light 2 ½″	1 ½″	40″ and 44″ long
Medium 2 ¾″	1 ⅞″	44″ and 48″ long
Heavy 3 ″	2 ″	44″ and 48″ long

No adopted rules for grading single trees and neck yokes, but stock must be absolutely clear and made from young, tough hickory.

SAWED FELLOES—Oak.

(26 pieces to set.)

The sizes given are for green felloes cut full.

Sizes most Common.

1 ¾x2 ½	2 ¾x2 ¾	2 ¾x3
*2 x2 ¾	3 ¼x2 ¾	3 ¼x3
2 ½x2 ¾	2 ¼x3	4 ½x3

Circles 2′ 11″ and 3′ 6″; 3′ 2″ and 3′ 10″; 3′ 6″ and 4′ 2″.

RULES.

GRADE.—Sound white or red oak, free from knots and also other defects, except that 1/16-inch stain will be allowed if said stain shows no sign of rot. Must be manufactured so that grain will run straight through center of each piece. Cut full sizes and proper circles.

BENT RIMS.

(8 pieces to set.)

The sizes given are for green rims.

Sizes most Common.

1 ¾x1 ¾	3 x2	4 ¼x2 ¼
2 x2	3 ¼x2 ⅛	5 x2
2 ½x2	4 x2	5 ¼x2 ¼

Circles 3′ 2″ and 3′ 10″; 3′ 6″ and 4′ 2″; 3′ 10″ and 4′ 6″.

GRADE.

Wagon Manufacturers' Grade.

(To replace what was formerly XXX.)

These rules agreed upon jointly by the Wagon and Rim Manufacturers, November 21, 1906.

WAGON STOCK.

MATERIALS.—Oak (any desirable species.)

QUALITY.—Clear and straight-grained, but not excluding reasonably straight, the grain not to cross the rim in a less distance than 24 inches; to be sound, free from bark, wane, checks (except checks on tread side), shakes, splits, knots and worm holes, but admitting not more than three small sound knots, not more than ½-inch in diameter on tread side; also, small worm holes not closer than 6 inches apart. Not over 15 per cent. of any shipment of rims shall be with knots or worm holes as above specified.

WORKMANSHIP.—Planed on top and bottom sides; no skips, tears or imperfect planing. Bending to be on the true circle of diameter specified. To be free from flats or humps, kinks, breaks or buckles, and no straight or drop ends.

WHITE OAK WAGON SPOKES.

(Wagonmakers' Grades.)

RULES.

Second Growth Grade.

MATERIAL.—Spokes of this grade are to be made from first quality timber, practically clear and straight grained, of heavy weight and very dense growth that will indicate the very greatest strength.

Defects.

CHECKS.—Small fine season checks not to exceed two two inches in length and not running into the shoulder admitted.

SPLITS.—None admitted.

CROSS GRAIN.—Grain which does not run at a greater angle at any one point than one inch in twenty-four inches admitted. Curly spokes are considered cross-grained and not admitted.

KNOTS.—Spokes having knots will not be admitted, but spokes showing a small sound spot having the appearance of a knot, but which is only a surface blemish, will be admitted.

SAP.—Half Sap that is bright and sound admitted.

BASTARD.—Not more than ¾ bastard will be admitted.

OTHER DEFECTS.—Evident defects not above enumerated not admitted.

WAGON STOCK.

"A" GRADE.

MATERIAL.—Spokes of this grade are to be made from live timber of dense growth, good weight, practically clear and straight-grained.

Defects.

CHECKS.—Small, fine, season checks not to exceed two inches in length and not running into the shoulder admitted.

SPLITS.—None admitted.

CROSS GRAIN.—Grain which does not run at a greater angle at any one point than one inch in twenty inches will be admitted. Spokes reduced from the second growth grade by reason of cross grain will be admitted in this grade when the grain does not cross at a greater angle than one inch in eighteen inches. Curly spokes are not admitted.

KNOTS.—Knots will not be admitted, but spokes showing a small sound spot having the appearance of a knot, but which is only a surface blemish will be admitted.

SAP.—Half Sap that is bright and sound admitted, but when of the second growth grade or very dense growth reduced by reason of having too much bright sap, will be admitted to the extent of two-thirds bright sap.

BASTARD.—Not more than half bastard will be admitted.

DIPS.—Spokes having dips not more than one in a spoke and located anywhere except at shoulder or tenon admitted, provided such dip is not more than ¼-inch in depth and not less than four inches in length.

OTHER DEFECTS.—Evident defects not above enumerated not admitted.

"B" GRADE.

MATERIAL.—Spokes of this grade are to be made from timber of a weight and growth that will indicate fairly good strength.

Defects.

CHECKS.—Small, fine, season checks, not to exceed two inches in length and not running into the shoulder admitted.

SPLITS.—None admitted.

WAGON STOCK.

CROSS GRAIN.—Grain which does not run at a greater angle at any one point than one inch in sixteen inches admitted. Spokes reduced from the second growth grade because of excessive cross grain, but in which the grain does not run at a greater angle at any one point than one inch in fourteen inches, admitted.

Spokes reduced from the "A" grade for cross grain will be admitted to this grade if grain does not run at a greater angle than one inch in fifteen inches.

KNOTS.—Knots will not be admitted, but spokes showing a small sound spot having the appearance of a knot, but which is only a surface blemish, will be admitted.

Spokes reduced from the second growth and "A" grades having one sound knot not over ¼-inch in diameter, showing only on one side and not within five inches of either end of the spoke, admitted here.

SAP.—Half Sap that is bright and sound will be admitted.

Bright all sap spokes of second growth grade admitted.

Spokes from "A" grade having three-fourths sap admitted.

BASTARD.—Not more than half bastard will be admitted.

Spokes of second growth grade will be admitted in this grade where full bastard.

Spokes of "A" grade will be admitted in this grade where three-fourths bastard.

DIPS.—Will be admitted in this grade where not more than one in a spoke and located anywhere except at shoulder or tenon, provided such dip is not more than ¼-inch in depth and not less than four inches in length.

WORM HOLES.—Black and pin worm holes in either second growth or "A" grades of timber will be admitted here to the extent of not more than three in any spoke, but these must not be bunched. Powder post worm holes not admitted.

OTHER DEFECTS.—Evident defects not above enumerated not admitted.

MANUFACTURE.

The following suggestions are made to the manufacturers of spokes, which, if heeded, will not only result in more perfect product, but remove the cause of much dispute and dissatisfaction:

WAGON STOCK.

It is shown that there is a great deal of complaint on account of poorly manufactured spokes, such as tearing in the barrel by the lathe knives or by the adjustment of the knives not being in line making thick and thin places along the barrels; the grain pulled out; also, rough machine work in the throat, or on the tenon, by which the corners may be chipped off, the tenon not even thickness and not in the center of the spoke. There should also be great care taken in the facing of spokes, so that the face and the back are square with the tenon, and not diamond shapes, as is so frequently the case. Spokes should also be well sanded with a view of having them clean and smooth.

It should also be understood that all spokes made under the foregoing rules will be branded only "Second Growth," "A" and "B" respectively, and that in no case will the spoke manufacturer brand these grades higher or lower than they will inspect under these rules nor will the wagon manufacturer request it. No restriction, however, is put upon the use of special brands.

SPECIFICATIONS FOR FINISHING OAK SPOKES FROM DRY STOCK

Western Regular and Wide Point Pattern				California Pattern			
Size of Spoke	Width of Tenon	Thickness of Tenon	Length of Tenon	Width of Tenon	Thickness of Tenon	Length of Tenon	Allowance for Shrinkage Half-Dry Stock.
1½	1 9/16	11/16	1¾				1/32 f
1⅝	1 11/16	11/16	1⅞				1/32 f
1¾	1 13/16	¾	2				1/32 f
1⅞	1 15/16	13/16	2⅛				1/16
2	2 1/16	13/16	2¼	2 1/16	⅞	2½	1/16
2⅛	2 3/16	13/16	2⅜	2 3/16	15/16	2⅝	1/16
2¼	2 5/16	⅞	2½	2 5/16	15/16	2¾	1/16
2⅜	2 7/16	15/16	2⅝	2 7/16	1	2⅞	1/16
2½	2 9/16	1	2¾	2 9/16	1 1/16	3	1/16
2⅝	2 11/16	1 1/16	2⅞	2 11/16	1 1/16	3⅛	1/16 f
2¾	2 13/16	1⅛	3	2 13/16	1⅛	3¼	1/16 f
2⅞	2 15/16	1⅛	3⅛	2 15/16	1⅛	3⅜	1/16 f
3	3 1/16	1 3/16	3¼	3 1/16	1 3/16	3½	1/16 f
3¼	3 5/16	1¼	3⅜	3 5/16	1¼	3¾	1/16 f
3½	3 9/16	1⅜	3½	3 9/16	1⅜	4	1/16 f

Note:—"f" signifies full size.

WAGON STOCK.

TENONING.—Make the tenon even thickness throughout, and in the center of barrel and straight with the face. Dish the shoulder so that when two spokes are placed face to face about ⅛-inch apart at the shoulder and the points touching the shoulders will come to a straight line so that a common rule placed flat on the tenons, the edge of the rule should touch the shoulders all the way across both spokes.

The above specifications for thickness of tenons are for thoroughly dry stock. When half dry, add allowance given; for entirely green stock, add double this allowance.

THROATING.—Make the shoulder the same thickness as the barrel. Shape the knives to make the throat about ⅛-inch thinner than the barrel; also make the throat a little full near the shoulder to give strength and prevent splitting off in driving. Shape the forms or cams to make the throat rounding, so the face and back will not be too large, but well proportioned. The back must be proportionately wider than the face. Adjust machine to make shoulder straight (neither rounding at the corners, nor hollow in the center.) Care should be taken to make both sides of the throat the same shape.

FACING OR JOINTING.—Take measurements for width of tenon at the shoulder. Face the spoke as nearly as possible to a straight line from the point end to the tenon end, and back the spoke as nearly as possible to a straight line from the point end to the shoulder. Taper the back of tenon on a straight line from the shoulder to the end, so the tenon will measure 1/16-inch less in width at the end (where it enters the hub) than at the shoulder.

The above specifications for width of tenons are for thoroughly dry stock. When half dry, add allowance given; for entirely green stock, add double this allowance.

ALLOWANCE FOR SHRINKAGE.—For spokes turned from stock from six to eight months old, and spokes turned from green stocks that have been under shed for three or four months, may be considered half dry, for which allowance is given above. For green stock, double this allowance.

SPECIFICATIONS FOR TURNING

Standard Western Pattern and Wide Point Club Spokes FROM DRY AND GREEN STOCK

Size of Spoke	Total Length of Head and Throat	Size of Head		Size of Barrel		Size of Regular Point		Size of Wide Point	
		Width	Thickness	Width	Thickness	Width	Thickness	Width	Thickness
Dry 1½	6¾	1 11/16	1 1/8	1 7/16	1 1/16	1 1/8	1 1/16		
Green		1 3/4	1 3/16	1 1/2	1 1/8	1 1/8 f	1 1/8		
Dry 1⅝	6⅞	1 13/16	1 3/16	1 9/16	1 1/8	1 3/16	1 1/8		
Green		1 7/8	1 1/4	1 5/8	1 3/16 f	1 3/16 f	1 3/16		
Dry 1¾	7	1 15/16	1 1/4	1 5/8 f	1 11/16 f	1 3/16 f	1 3/16		
Green		2	1 5/16	1 11/16 f	1 1/4	1 1/4	1 1/4		
Dry 1⅞	7⅛	2 1/16	1 5/16	1 3/4 f	1 1/4	1 1/4	1 1/4		
Green		2 1/8	1 3/8 f	1 13/16 f	1 5/16 f	1 1/4 f	1 5/16 f		
Dry 2	7¼	2 3/16	1 5/16	1 7/8	1 1/4	1 1/4 f	1 1/4	1 1/2	1 1/4
Green		2 1/4	1 3/8 f	1 15/16	1 5/16 f	1 5/16	1 5/16 f	1 9/16	1 5/16 f
Dry 2⅛	7⅜	2 5/16	1 3/8	2	1 5/16	1 5/16	1 5/16	1 5/8	1 5/16
Green		2 3/8 f	1 7/16 f	2 1/16	1 3/8 f	1 5/16 f	1 3/8 f	1 11/16	1 3/8 f
Dry 2¼	7½	2 7/16	1 7/16	2 1/8	1 3/8	1 3/8	1 3/8	1 11/16	1 3/8
Green		2 1/2 f	1 9/16	2 3/16	1 1/2	1 7/16	1 1/2	1 3/4	1 1/2
Dry 2⅜	7⅝	2 9/16	1 1/2	2 1/4	1 7/16	1 7/16	1 7/16	1 3/4	1 7/16
Green		2 5/8 f	1 5/8	2 5/16	1 9/16	1 1/2	1 9/16	1 13/16	1 9/16
Dry 2½	7¾	2 11/16	1 9/16	2 3/8	1 1/2	1 1/2	1 1/2	1 7/8	1 1/2
Green		2 3/4 f	1 11/16	2 7/16 f	1 5/8	1 9/16	1 5/8	1 15/16	1 5/8
Dry 2⅝	7⅞	2 13/16	1 5/8	2 1/2	1 9/16	1 5/8	1 9/16	2	1 9/16
Green		2 7/8 f	1 3/4 f	2 9/16 f	1 11/16 f	1 11/16	1 11/16 f	2 1/16	1 11/16 f
Dry 2¾	8	2 15/16	1 3/4	2 5/8	1 11/16	1 11/16	1 11/16 f	2 1/16	1 11/16
Green		3 1/16	1 7/8 f	2 11/16 f	1 13/16 f	1 7/8	1 13/16 f	2 5/16	1 13/16 f
Dry 2⅞	8⅛	3 1/16	1 13/16	2 3/4	1 3/4	2	1 3/4	2 1/4	1 3/4
Green		3 3/16	1 15/16 f	2 13/16 f	1 7/8 f	2 1/16	1 7/8 f	2 5/16 f	1 7/8 f
Dry 3	8¼	3 1/16	1 15/16	2 7/8	1 13/16	2 1/4	1 13/16	2 1/4	1 13/16
Green		3 5/16	2 1/16	3	2	2 5/16 f	2	2 5/16 f	2
Dry 3¼	8½	3 7/16	2 1/16	3 1/16	1 15/16	2 3/16	1 15/16	2 3/16	1 15/16
Green		3 9/16	2 1/16	3 1/4	2 1/16	2 7/16 f	2 1/16	2 7/16 f	2 1/16
Dry 3½	8¾	3 11/16	2 1/16	3 3/16	2	2 1/16	2	2 1/16	2
Green		3 13/16	2 5/16	3 1/16	2 3/16	2 5/16 f	2 3/16	2 5/16 f	2 3/16

Note:—"f" signifies full size.

WAGON STOCK.

TOTAL LENGTH OF HEAD AND THROAT—Make exact length to figures given from head end to where throat and barrel knives lap, the head or square must be at least of ample length for tenon.

SIZE OF HEAD.—Make measurement about where shoulder will be when tenoned.

SIZE OF BARREL.—Make measurement just below where barrel and throat knives lap. Make hinds exact width as figures given. Front spokes having more taper should be made 1/16-inch less in width of barrel.

SIZE OF POINT.—Measurement to be made ½-inch from point end of all lengths. From face to back is to be considered the wide way.

REGULAR LENGTHS.—Fronts, all sizes, 22 inches long; hinds, all sizes, 2½ inches and under, 26 inches long; all sizes, 2⅝ inches and over, 28 inches long.

The above specifications for Dry are intended for thoroughly dry stock at least twelve months or more old; and for Green are intended for entirely green stock. When stock is half dry, say six months old, allow for shrinkage about half the difference between dry and green specifications. When not quite dry, make a little full of Dry Specifications. When not quite green, make a little scant of Green Specifications.

Keep your lathe knives adjusted to a straight line so the spoke will be of even thickness from the point to the throat.

Adopted by Spoke Manufacturers' Association, December 20, 1906.

Revised March 25, 1908.

Adopted by the National Wagon Manufacturers' Association, April 28, 1909.

HARDWOOD DIMENSION MATERIAL

OAK CHAIR AND FURNITURE STOCK.

All pieces must be taken as they are manufactured, and no allowance made to change grade by re-manufacture. All stock to be of practically uniform thickness and width, to be full thickness and width when dry. Any amount of bright sap admissible in all Chair and Furniture Dimension Stock. Seat Stock to have one clear face and two ends; no defect admissible in edges that will show after jointing.

Chair Frame Stock to have one clear face, both ends, and both edges.

Table Tops take same inspection as Seat Stock. Squares for turning shall contain no defect that will not turn out Squares for dressing up and to be used as squares must be clear on all edges and ends that show.

Chair Backs that show on two sides must be clear both sides, both edges, and both ends; all Quartered Oak must show figure on one face. No badly discolored or doty sap admissible in any of the above stock.

All band sawed pattern stock to show four clear sides unless contract is made to contrary setting forth that defects may be permitted on any one or more sides.

IMPLEMENT STOCK.

Plow Handle Strips must be practically straight-grained and clear of all defects, except slight streaks and small bird pecks, or small bright knots located so as not to interfere with the bending of the piece or its strength.

CUBAN MAHOGANY

Grades: Prime, Selects, Rejects, Shorts and Counters.
Lengths: 2 feet and over.
Widths: 3 inches and over.
Thicknessess: Standard.
All odd lengths must be measured.

Prime.

Prime must be 6 inches and over wide, 8 feet and over long, not to exceed 25% of 8 and 9-foot lengths.

Standard defects are admitted according to widths as follows:

6 or 7 inches, 1 standard defect or its equivalent.
8 or 9 inches, 2 standard defects or their equivalent.
10 or 11 inches, 3 standard defects or their equivalent.
12 inches or over, 4 standard defects or their equivalent.

Selects.

Selects may be 4 inches and over wide, 6 feet and over long, and must work two-thirds clear, with no cutting less than 4 inches wide and 3 feet long, or 3 inches wide and 4 feet long.

Rejects.

Rejects must be 3 inches and over wide, 6 feet and over long, and must work 50% clear. No piece or cutting considered which is less than 4 inches wide and 2 feet long, or 3 inches wide and 3 feet long.

Shorts.

Shorts must be 3 inches and over wide, 2 to 7 feet long, and must be prime in quality.

Pieces 3, 4 and 5 inches wide must be clear.

Pieces 6 inches and over wide must be graded same as Prime.

Counters.

Counters must be 12 to 40 feet long, 16 to 24 inches wide. Splits to be measured out.

Clear Strips.

Clear Strips must be 2½ to 5½ inches wide, 5 feet and over long, clear of defects on one face and two edges. Reverse face must be sound.

MEXICAN AND AFRICAN MAHOGANY

Grades: First, Second, No. 1 Common, No. 2 Common, Shorts and Counters.

Lengths: 2 feet and over.

Thicknesses: Standard.

Widths: 3 inches and over.

All odd lengths must be measured.

One inch of bright sap in the aggregate is a standard defect.

The percentage of Firsts in the combined grade of Firsts and Seconds to be as follows:

Mexican Mahogany—Not less than 40 per cent.

African Mahogany—Not less than 35 per cent.

Firsts.

Firsts must be 7 inches and over wide, 10 feet and over long, and free from all defects, except that pieces 10 feet and over surface measure may have one standard defect or its equivalent.

Seconds.

Seconds must be 6 inches and over wide.

Standard defects are admitted according to surface measure as follows:

6 feet, 1 standard defect or its equivalent.

9 feet, 2 standard defects or their equivalent.

13 feet, 3 standard defects or their equivalent.

18 feet and over, 4 standard defects or their equivalent.

No. 1 Common.

No. 1 Common must be 4 inches and over wide, 6 feet and over long.

Pieces 4 inches wide, 6 to 11 feet long, must work 66 2/3% clear in not over two pieces; 12 feet and over long must work 66 2/3% clear in not over three pieces. No piece or cutting to be less than 2 feet long by the full width of the piece.

Pieces 5 inches and over wide, 6 to 11 feet long, must work 66 2/3% clear in not over two pieces; 12 feet and over long must work 66 2/3% clear in not over three pieces. No piece or cutting to be considered which is less than 4 inches wide and 2 feet long, or 3 inches wide and 3 feet long.

MEXICAN AND AFRICAN MAHOGANY.

No. 2 Common.

No. 2 Common must be 3 inches and over wide, 2 feet and over long, and must work 50% clear. No piece or cutting considered which is less than 3 inches wide and 2 feet long.

Shorts.

Shorts must be 4 inches and over wide, 2 to 5 feet long

Pieces 4 to 5 inches wide must be clear.

In pieces 6 inches and over, standard defects are admitted according to surface measure as follows:

2 feet, 1 standard defect or its equivalent.

4 feet, 2 standard defects or their equivalent.

5½ feet, 3 standard defects or their equivalent.

6½ feet and over, 4 standard defects or their equivalent.

Counters.

Counters must be 12 to 40 feet long, 18 to 24 inches wide, and must be free from all defects. Splits to be measured out.

RULES FOR THE MEASUREMENT AND INSPECTION OF LOGS

Issued January 19, 1915, by Southern Log Association, Memphis, Tenn., and adopted July 9, 1915, by the Hardwood Manufacturers' Association of the United States as its Standard Rules.

GENERAL INSTRUCTIONS FOR MEASURING AND GRADING LOGS.

The inspecting or grading of a log is necessarily a matter of judgment in determining from the outside appearance of the log the seriousness of its defects, and its adaptability for lumber of different grades, or for other purposes.

In determining the grade of a log, the entire surface (which includes both ends) must be taken into consideration, and inspectors must use their best judgment in determining the seriousness of each and every defect in and on the log.

On account of knots and other defects frequently being under the log, imbedded in the ground, or hidden from view between logs which are closely bulked, inspectors will put all line logs, or logs on which there is a reasonable question as to grade, into the lower grade with which it is in question.

Standard lengths shall be 10, 12, 14 and 16 feet, 60 per cent. or more to be 14 and 16 feet, and not over 2 per cent. to be 10 feet long.

All logs must be cut 4 inches longer than the above lengths to allow for the proper trimming of the lumber.

All logs must be measured at the small end, the narrow way, inside the bark, and all fractions of an inch must be called back to the next lower figure. Deductions must be made from the above measurements for certain defects as hereinafter stated.

All logs should be straight, or due allowance must be made in grade and measure for crooked logs.

An allowance is to be made in the measurement of hollow logs to fully compensate for the loss in lumber scale.

GRADING LOGS.

A No. 1 log shall not twist more than one inch to every foot in the length of the log.

Damaged sap is a serious defect and must be considered in determining the grade. Doty or rotten sap is to be measured off regardless of the grade of the log.

Grub worm holes, spots, spot worms, bark specks, pecks, mineral streaks, dote and cat faces are very serious defects. The appearance of any of the above mentioned defects on the surface of a log is practically conclusive evidence of its existence within the entire log, and inspectors must carefully take them into consideration in determining the grade. On account of the uncertainty of the quantity of such hidden defects, they are each to be considered as much or more damaging than a sound knot, especially when they appear on both ends of the log.

A reduction is to be made in measurement or grade, or both, for loose-hearted or shaky-hearted logs; or for logs which have popped open or split open on the ends.

Double-heart is a very serious defect, and same is not admitted in the grade of No. 1 logs, unless both hearts can fully be inclosed in a 6-inch circle on logs 24 to 29 inches, inclusive, in diameter; and an 8-inch circle on logs 30 inches and over in diameter; and in any case inspectors will take into consideration the seriousness of the defect in determining the grade.

Bulges and irregularities on the bark surface of a log are practically conclusive evidence of some hidden serious defect and are to be given careful consideration by the inspector in grading the log.

Ring shake is a very serious defect and inspectors will carefully consider same according to its extent and damage, both for grade and measurement.

On No. 1 and Select logs, where the heart is more than two inches out of center, one standard defect will be counted for each additional two inches or fraction thereof.

All stump shot or shivered logs are to be matched sawn, making the ends smooth.

It is understood that a run of logs is to contain the full amount of good logs, which the standing timber will produce, and that no large nor high-grade logs are to be separated from the run of logs.

GRADING LOGS.

The standard of measure for a standard defect will be a sound bright knot with a maximum diameter of not more than 4 inches. Where the rules call for its equivalent, it is understood to mean its equivalent in damage to the product of the log, and NOT its equivalent in size; for instance, a grub worm hole will be considered as serious as a standard knot, and may be considered as more serious according to the inspector's judgment as to their existence within the log.

Any defects not mentioned in these rules are to be considered by the inspector according to their damage to the log.

These rules describe the poorest logs in any grade, but the respective grades must contain all logs up to the next higher grade.

Where the rules mention the amount of sap a grade will take, it is understood that the measurement of the sap is to be taken in the average from the inside of the bark to the heart wood; sap to be measured on small end of log.

The size of a log after deductions are made for defects is to govern in grading same.

OAK—WHITE AND RED.

Number 1.

Two inches of bright sap is no defect. Sap in excess of 2 inches is one standard defect.

No. 1 logs must be 24 inches and over in diameter.

24 to 29-inch, inclusive, will admit of one standard defect or its equivalent.

30-inch and over will admit of two standard defects or their equivalent.

Select.

Select logs must be 18 inches and over in diameter.

Two inches of bright sap is no defect. Sap in excess of two inches, is one standard defect.

18 to 21-inch, inclusive, must have ends and surface clear.

22 and 23-inch will admit of one standard defect or its equivalent.

24-inch and over will admit of one more standard defect than is admitted in No. 1 logs of same size.

GRADING LOGS.

Number 2.

No. 2 logs must be 16 inches and over in diameter.

Bright sap is not a defect in this grade.

16 and 17-inch will admit of one standard defect or its equivalent.

18 to 23-inch, inclusive, will admit of two standard defects or their equivalent.

24-inch and over must cut 75 per cent. or more in No. 1 Common and Better lumber.

Note—It is understood that Overcup logs are not included with the purchases of White Oak logs, unless special agreement is made in writing to include same.

WHITE ASH.

Bright sap is no defect in any grade.

Number 1.

No. 1 logs must be 18 inches and over in diameter.

18 to 23-inch, inclusive, must have ends and surface clear.

24 to 29-inch, inclusive, will admit of one standard defect or its equivalent.

30-inch and over will admit of two standard defects or their equivalent.

Select.

Select logs must be 16 inches and over in diameter.

16 and 17-inch must have ends and surface clear.

18-inch and over will admit of one more standard defect than is admitted in No. 1 logs of same size.

Number 2.

No. 2 logs must be 14 inches and over in diameter, and must cut 75 per cent. or more into No. 1 Common and Better lumber.

Note—It is understood that soft or pumpkin Ash logs are not included with purchases of White Ash logs, unless a special agreement is made in writing to include same.

GRADING LOGS.

YELLOW POPLAR AND CYPRESS.

Number 1.

No. 1 logs must be 24-inch and over in diameter.

Two inches of bright sap is no defect in 24 to 29-inch, inclusive.

Three inches of bright sap is no defect in 30-inch and over.

Each additional inch of bright sap is one standard defect.

24 to 29-inch, inclusive, will admit of one standard defect or its equivalent.

30-inch and over will admit of two standard defects or their equivalent.

Select.

Select logs must be 18 inches and over in diameter.

Bright sap is no defect in this grade.

18 to 21-inch, inclusive, must have ends and surface clear.

22 and 23-inch will admit of one standard defect or its equivalent.

24-inch and over will admit of one more standard defect than is admitted in a No. 1 log of the same size.

Number 2.

No. 2 logs must be 16 inches and over in diameter.

Bright sap is no defect in this grade.

16 and 17-inch will admit of one standard defect or its equivalent.

18 to 23-inch, inclusive, will admit of two standard defects or their equivalent.

24-inch and over must cut 75 per cent. or more in No. 1 Common and Better lumber in Poplar, and 75 per cent. or more in No. 1 Shop and Better in Cypress.

Note 1—Mineral streaks and blue wood in Poplar are very serious defects.

Note 2—Peck and shake in Cypress are very serious defects.

GRADING LOGS.

RED GUM.

Number 1.

No. 1 logs must be 24 inches and over in diameter.

Three inches of sap is no defect in 24 to 29-inch, inclusive.

Four inches of sap is no defect in 30-inch and over.

Each additional inch of sap is one standard defect.

24 to 29-inch, inclusive, will admit of one standard defect or its equivalent.

30-inch and over will admit of two standard defects or their equivalent.

Select.

Select logs must be 18 inches and over in diameter.

Sap is no defect in this grade.

18 to 21-inch, inclusive, must have ends and surface clear.

22 and 23-inch will admit of one standard defect or its equivalent.

24-inch and over will admit of one more standard defect than is admitted in a No. 1 log of the same size.

Number 2.

No. 2 logs must be 16-inch and over in diameter.

Sap is no defect in this grade.

16 and 17-inch will admit of one standard defect or its equivalent.

18 to 23-inch, inclusive, will admit of two standard defects or their equivalent.

24-inch and over must cut 75 per cent. or more in No. 1 Common and Better lumber.

Note—Discoloration of sap on ends of Gum logs must be accepted, provided stain is not sufficient to lower the grades of the product.

GRADING LOGS.

COTTONWOOD, ELM, MAPLE, BASSWOOD, TUPELO AND BLACK GUM.

Bright sap is no defect in any grade.

Number 1.

No. 1 logs must be 24 inches and over in diameter.

24 to 29-inch, inclusive, will admit of one standard defect or its equivalent.

30-inch and over will admit of two standard defects or their equivalent.

Select.

Select logs must be 18 inches and over in diameter.

18 to 2 1-inch, inclusive, must have ends and surface clear.

22 and 23-inch will admit of one standard defect or its equivalent.

24-inch and over will admit of one more standard defect than is admitted in a No. 1 log of the same size.

Number 2.

No. 2 logs must be 16 inches and over in diameter.

16 and 17-inch will admit of one standard defect or its equivalent.

18 to 23-inch, inclusive, will admit of two standard defects or their equivalent.

24-inch and over must cut 75 per cent. or more in No. 1 Common and Better lumber.

HICKORY, PERSIMMON AND SYCAMORE.

These woods are usually bought for specific uses and therefore it is deemed best that mutual inspection or special contract should govern.

CYPRESS AND TUPELO

The Grading Rules of the Southern Cypress Manufacturers' Association, New Orleans, La., have been adopted by the Hardwood Manufacturers' Association of the United States and copies will be furnished free of charge upon application.

Official Symbols for Grade Marks
of the
Hardwood Manufacturers' Association
of the United States.

PANEL AND WIDE No. 1.	
WIDE No. 2.	
BOX BOARDS	
FAS OR FIRSTS & SECONDS	
SAPS	
SELECTS	
No. 1. COMMON.	
No. 2. COMMON.	
No. 3. COMMON.	
No. 4. COMMON.	

UNIVERSAL STANDARD LOG SCALE

OFFICIAL SCALE OF

The Hardwood Manufacturers' Association of the United States

Length in Feet

Diameter of Inches	8	10	12	14	16	18	20	22	24
10	18	23	27	32	36	41	46	50	54
11	24	31	37	43	49	55	61	67	74
12	32	40	48	56	64	72	80	88	96
13	40	50	61	71	81	91	101	111	122
14	50	62	75	88	100	112	125	137	150
15	60	75	91	106	121	136	151	166	181
16	72	90	108	126	144	162	180	198	216
17	84	106	127	148	169	190	211	232	253
18	98	122	147	171	196	220	245	269	294
19	112	141	169	197	225	253	280	309	338
20	128	160	192	224	256	288	320	352	384
21	144	181	217	253	289	325	361	397	433
22	162	202	243	283	324	364	404	445	486
23	180	226	271	313	359	406	452	496	541
24	200	250	300	350	400	450	500	550	600
25	220	276	331	386	441	496	551	606	661
26	242	302	363	423	484	544	605	665	726
27	264	330	397	463	530	596	661	726	794
28	291	363	436	509	582	654	728	800	873
29	305	381	457	533	609	685	761	838	914
30	328	411	493	575	657	739	821	904	986
31	355	444	532	622	710	799	888	976	1065
32	368	460	552	644	736	828	920	1012	1104
33	392	490	588	686	784	882	980	1078	1176
34	400	500	600	700	800	900	1000	1100	1200
35	438	547	657	766	876	985	1095	1204	1314
36	462	577	692	807	923	1088	1152	1268	1384
37	514	644	772	901	1029	1158	1287	1415	1544
38	534	669	801	934	1068	1201	1335	1468	1602
39	560	700	840	980	1120	1260	1400	1540	1680
40	602	752	903	1053	1204	1354	1505	1655	1806
41	636	795	954	1113	1272	1431	1590	1749	1908
42	671	840	1007	1175	1343	1511	1679	1846	2014
43	698	872	1046	1222	1396	1571	1745	1918	2092
44	740	925	1110	1295	1480	1665	1850	2035	2220
45	759	949	1139	1329	1518	1707	1898	....	....
46	793	991	1190	1388	1587	1785	1983	....	....
47	828	1035	1242	1449	1656	1862	2070	....	....
48	864	1080	1296	1512	1728	1944	2160	....	....

The above rules is a combination of the Doyle and Scribner rules. Doyle 27 inches and under. Scribner 28 inches and over.

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